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LAWS AND REGULATORY SCHEMES FOR NOISE ABATEMENT

DECEMBER 31, 1971

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LAWS AND REGULATORY SCHEMES FOR NOISE ABATEMENT

DECEMBER 31, 1971

Prepared by

THE GEORGE WASHINGTON UNIVERSITY
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for the

U.S. Environmental Protection Agency
Office of Noise Abatement and Control
Washington, D.C. 20460

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SURVEY OF REGULATORY SCHEMES FOR ENVIRONMENTAL NOISE ABATEMENT

ABSTRACT

I - Among the more significant findings and conclusions of this Report are the following:

- The existing Environmental Noise Regulatory Structure is fragmented in organization and *ad hoc* in operation. Abatement functions are distributed among Federal, State, and local governmental levels but are largely uncoordinated.

- The environmental noise problem context is composed of a wide variety of discrete noise sources and noise environments. Numerous partial efforts have been made to regulate "excessive" or "unnecessary" noise through regulatory schemes directed to abatement at the source, reduction of the effects of noise, and to remedies (by private action) to abate the source or to reduce the effects.

- Regulation by the Federal government has been slight. Even with respect to aircraft noise the pace of abatement at the source has been gradual with no short term prospects for substantial relief.

- Regulation by the states has for the most part been limited to selected noise sources although some states are now in process of enacting comprehensive noise abatement statutes.

- Most noise abatement regulation has taken place at the local level by means of general noise ordinances or ordinances directed to specific noise sources or by the creation of "quiet zones."

- Both State and local governmental levels are handicapped in police power regulation of some of the more critical noise sources as a result of preemptive Federal legislation (aircraft noise) or by the threat of impinging upon a strong national interest in maintaining the free flow of interstate commerce.

- Very little attention has been given to construction equipment or site noise, or to domestic noise sources.

- Enforcement of noise abatement State statutes and municipal noise ordinances has been notoriously spasmodic and uniformly weak; in general, noise control enforcement has been placed on already overburdened State highway patrols or local police officers.

- While both the Federal government and State governments have been slow to intervene in the noise regulatory area, certain trends point to a substantially increased level of effort:

Federal level:	Noise abatement (occupational) of all businesses operating in interstate commerce
	Construction site noise abatement under the Construction Safety Act
	Highway design to reduce noise effects
State level:	Enactment of comprehensive environmental quality statutes, including environmental noise abatement codes
	Enactment of specific legislation designed to control the total noise emissions of vehicles and to regulate the noise level operations of vehicles
Local level:	Initial efforts by a few cities to enact comprehensive Environmental Noise Codes covering all or most of the serious noise sources and noise environments subject to municipal regulation

Growing sophistication at all governmental levels in noise abatement and control techniques, including the establishment of decibel levels to replace or supplement verbal-subjective standards

Increasing disposition to broaden coverage of noise sources and noise environments by regulatory schemes and to disseminate through labelling or by other means useful information on noise dangers and abatement techniques to the general public

II - Among the more significant continuing problems in the regulation of environmental noise identified by the Report are the following:

- Lack of official and organized public interest in aggressive noise abatement programs.
- Conflict of the social interest in noise abatement with other social values such as safety or free expression which are accorded higher priority in the scheme of social interests.
- Intensification of the stress between Federal efforts and State/local noise abatement efforts, especially in those regulatory contexts where Federal preemptive legislation is involved.
- Continuing difficulty by State or local authorities to regulate noise to the satisfaction of local conditions and needs where such regulation requires control over the noise source or effects of vehicles, equipment, and appliances regularly moving in or operating in interstate commerce.
- Continuing difficulty, due to the multiplicity of noise sources and noise environments, of determining what noise sources or effects are to be controlled by what level of government with respect to the setting of standards or to operating procedures, having appropriate regard for the need of uniformity of regulation in some areas and the need for diversity of regulation to suit unique local conditions in others.

SURVEY OF REGULATORY SCHEMES FOR ENVIRONMENTAL NOISE ABATEMENT

The report presents results from

The Report

The Program of Policy Studies in Science and Technology of The George Washington University undertook the general assignment of surveying the existing Federal, State, and local laws, ordinances, and regulations governing the abatement and control of environmental noise.

This basic assignment was divided into four sub-tasks for purposes of organizing the study report and performing the necessary research and evaluative functions:

Sub-Task 1. (Section 1)

- CURRENT GOVERNMENTAL NOISE REGULATORY SCHEMES ;

Sub-Task 2. (Section 2)

- ANALYSIS OF EXISTING LEGAL REGULATORY STRUCTURE FOR NOISE ABATEMENT AND CONTROL ;

Sub-Task 3. (Section 3)

- THE EFFECTIVENESS OF EXISTING NOISE CONTROL REGULATION ;

Sub-Task 4. (Section 4)

- PROPOSALS AND PROBLEMS IN THE REGULATION AND ABATEMENT OF NOISE .

While the primary task of the PPS/GWU Study Group was to survey the existing environmental noise regulatory structure, we found it useful to place this task in an analytical framework which would enable the interested policymaker to develop new or modified regulatory schemes for introducing more effective noise abatement procedures into the public decision process. Aspects of this analytical approach are discussed below.

In order to gain a confident grasp of the so-called "environmental noise problem," it is necessary to recognize that the noise abatement task can be represented by a multiplicity of problem formulations and that there are a variety of modes of control. Noise can, of course, be drastically reduced by the elimination or prohibition of various noise source activities. But this is hardly a satisfactory solution since such action would, in most instances, involve social costs far greater than the social gain in "tranquility." Noise abatement must therefore be considered in terms of the full spectrum of social values and the optimum distribution of social benefits and social costs among those affected. Air transportation, for example, involves undesirable noise, air pollution, and often, vehicular congestion. But air transportation obviously serves highly preferred social values such as general mobility, emergency services, technological innovation, and an increase in available social options to large segments of society. Aircraft noise, therefore, is only one aspect of the air transportation system. Excessive noise is only one of many social problems incident to the operation of the air transportation system. Further, the "problem of aircraft noise" can be approached from various perspectives and formulated in a variety of ways. The "problem of environmental noise" is clearly much broader than aircraft noise and the approaches to problem context definition are necessarily multiplied.

The essential import of the foregoing considerations is that the abatement of certain noise sources or effects may require the adaptation of the noise regulatory scheme to the prime social context of which the noise factor is only one adverse effect of a much larger activity having numerous social benefits as well as detriments. In more simplistic terms, the significance attached to noise abatement may depend upon the social values considered to be in conflict with this objective. The urban vehicular traffic context represents strong social values (such as autonomy of movement) which tend to subordinate the need for relief from the attendant noise. But noise abatement may prevail where the competing interest is simply the recreational use of firecrackers.

For purposes of providing an analytical framework which would assure this report a satisfactory degree of coherence as well as systematically suggest alternative modes of abating and controlling excessive environmental noise, the PPS/GWU Study Group developed and applied to the extent feasible a provisional Illustrative Regulatory Matrix for Environmental Noise Abatement and Control exemplified by the following components:

- 1971 Baseline Conditions:

Col. 1	Noise Sources
Col. 2	Noise Effects
Col. 3	Social Impact Evaluation of Noise Effects

- Regulatory Configuration Elements:

Col. 4	Objectives and Functions
Col. 5	Formal Authority and Level of Governmental Control
Col. 6	Modes of Control and Implementation Techniques
Col. 7	Criteria: Units of Measurement of Noise
Col. 8	Alternative Standards
Col. 9	Enforcement - Remedies and Penalties
Col. 10	Affected Participants

- Appraisal: An analytical approach to the analysis of existing schemes of environmental noise regulation

- Evaluation: An analytical approach for the evaluation of the preemptive implications of proposed Federal and State noise regulatory legislation

This Regulatory Matrix suggests relevant questions which need to be addressed with respect to environmental noise abatement. For example, Col. 2 and Col. 3 stimulate inquiry as to what effects from what noise sources have sufficiently serious social consequences to justify a deliberate governmental effort to reduce noise at the source or to reduce the magnitude of the effects. Appraisal envisages the appraisal of the effectiveness of existing regulatory schemes or programs of noise abatement and the assessment of alternative combinations of configuration elements (from Col. 4 through Col. 10) for the proposed abatement and control of non-regulated or inadequately regulated noise sources or effects. Evaluation raises certain questions such as whether the adequate regulation of given noise sources or effects is compatible with an optimum achievement of all social values involved in the given noise problem context and whether the resources required to be allocated for an adequate noise abatement program are justified relative to the need for allocation of resources to other public programs. Answers to such questions will depend largely on how the environmental noise problem is defined and the cost of alternative means for adequately coping with this social problem context.

The Environmental Noise Regulatory Matrix, by providing a means of analyzing the environmental noise problem, also protects against an overly simplistic approach to noise abatement. It is sometimes said that noise is a "local problem." This can be somewhat misleading. No doubt, noise is primarily a local problem with respect to the Effects of noise. It is not necessarily a local problem with respect to the Control over the abatement of noise at the source or over the reduction of the magnitude of noise effects. The "noise context" selected for control purposes will ordinarily be defined in terms of noise effects emitted from particular discrete noise sources or noise environments.

Having selected the social problem (noise) contexts to be abated and controlled, one should move through all of the elements of the Environmental Noise Regulatory Configuration (ENRC) in order to determine what combination of elements will provide the most effective means of abatement and control for particular noise contexts. While there will be numerous combinations or alternative configurations which may appear applicable, some elements will obviously apply and others may be precluded as a result of recognized divisions of formal authority among Federal, State, and local jurisdictions. Regulatory schemes should therefore be selected with a number of considerations in mind of which the following are illustrative:

- What noise can best be abated at the source?
- What noise can best be regulated through the reduction of effects?

- What noise is so infrequent or unique or marginal in terms of social costs that it is best left to judicial or administrative techniques of compensation for harm done?

- How can functions for certain noise control contexts be best apportioned among governmental levels or among entities at the same level?

- How can regulatory configurations be designed for controlling specified noise contexts so as to minimize conflict in functions, including standards setting, administration and enforcement, i.e., minimization of "preemption" cases?

- In view of the above considerations with respect to what noise sources, or effects of noise sources can a given locality be permitted to set noise standards at more stringent levels than required by either Federal or State standards? What are the principal considerations? What are the precedents in other areas of environmental quality control?

The foregoing questions and other relevant inquiries must, of course, be analyzed and evaluated in the context of certain influential conditions and trends which are, in effect, constraints on effective noise abatement programs:

- To date, environmental noise as a social problem has been given relatively little organized attention. This area has not been considered high in the priority of public concerns and, for the most part, abatement efforts have been ad hoc and spasmodic. Noise abatement has come into conflict with other social values which have traditionally been given great weight in our overall social value scheme: need for transportation and private mobility, technological progress, and economic expansion.

- This general observation can be expressed in more specific social value and institutional terms, as for example:

Just in the last few years have organized constituencies of noise-abused citizens come into being.

Government, at all levels, has been slow to take effective noise abatement action although the growing seriousness of the problem has been recognized for many years.

Industrial and commercial interests have been even more lax than the public sector in taking an aggressive stance toward environmental noise reduction.

Past emphasis on the economic value (increasing production and indiscriminate consumption) with little concern for environmental amenities has encouraged industry to "externalize" social costs of detrimental "side-effects" such as excessive and unnecessary noise.

There has existed an almost crass indifference to the detrimental effects of noise on neighborhood, family, educational, and health care environments.

Overall, the research effort directed to the study of the effects of noise, alternative means of abating noise at the source and the effects of noise, and into various regulatory configurations which would provide adequate means of coping with excessive and unnecessary noise has been modest.

Concomitant to the point immediately above, there is a lack of public understanding of the noise problem and of personnel skilled in the administration and enforcement of noise abatement programs.

As previously noted, the primary task of the PPS/GWU Study Group was to conduct a survey of the existing regulatory structure and to make a tentative assessment of the effectiveness with which such regulations are administered and enforced. However, in sections 2, 3, and 4 certain provisional suggestions are made which should provide guidance in the further development of environmental noise abatement programs at the Federal, State, and local levels.

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For purposes of cross reference from Sections 3.1 - 3.4 of the Environmental Protection Agency's report to the United States Congress on environmental noise to George Washington University's expanded report, Survey of Regulatory Schemes for Environmental Noise Abatement, deletion of the initial number "3" from the section of the Congressional report will produce the number of the corresponding section of the expanded report. As an example 3.1.1 of the Congressional report corresponds to 1.1 of the expanded report.

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Appendix A FEDERAL-REGIONAL-STATE-AND-LOCAL NOISE CHART

1 CURRENT GOVERNMENTAL NOISE REGULATORY SCHEMES

1.1 PRESENT NOISE ABATEMENT REGULATION AT THE FEDERAL LEVEL

1.1.1 General Policy for Federal Noise Abatement and Control

From the colonial period until the mid-20th century the Federal government, as well as the general populace, was unconcerned with the noise levels in the American environment. The urbanization of our society coupled with an increased mobility due to the new technological advances in transportation and industry brought people into closer contact with noise-producing machines. Mounting citizen dissatisfaction with the noisy conditions pervading both working and leisure environments essentially forced the Federal government into legislative action.

Prior to its initial forays into noise abatement legislation, the Federal government had consistently taken the position that the matter of noise abatement was a local concern.[1] Yet there are areas, most notably those in which interstate commerce may be affected, where the Federal government was not and is not willing to allow local regulations to curb the noise of these activities.[2] With the advent of court decisions against local regulation in the presence of an activity affecting interstate commerce or the national defense, the Federal government came under increasing pressure to abate the noise from these interstate activities.

Prior to 1970 the Federal government's activities in noise abatement had no central focus. The emphasis was on specific activities regulated separately by individual agencies. This pre-1970 situation tended to foster consideration of each noise problem in isolation, rather than in the context of the noise problem as a whole.

During 1970, the Congress drafted and eventually enacted amendments to the Clean Air Act (42 USC 1857 et. seq.). Title IV of these amendments was the "Noise Pollution and Abatement Act of 1970."[3] This act set up the Office of Noise Abatement and Control (ONAC) within the Environmental Protection Agency (EPA) and thus gave a central focus to the Federal government's activities in noise abatement. It nevertheless did not go far enough, in the estimation of many, toward giving this new office the authority to abate noise. The ONAC was primarily directed to:

> carry out . . . a full and complete investigation and study of noise and its effect on the public health and welfare in order to:
>
> 1) identify and classify causes and sources of noise, and
> 2) determine
>
>   a) effects at various levels;
>   b) projected growth of noise levels in urban areas through the year 2000;
>   c) the psychological and physiological effect on humans;
>   d) effects of sporadic extreme noise (such as jet noise near airports) as compared with constant noise;
>   e) effect on wildlife and property (including values)
>   f) effect of sonic booms on property (including values); and
>   g) such other matters as may be of interest in the public welfare.[4]

A minor authority for actual abatement activities was granted by Section 402(c) wherein, following a determination by the Administrator of EPA that an activity of "any Federal department or agency . . . amounts to a public nuisance or is otherwise objectionable," that department or agency must "consult with the Administrator to determine possible means of abating such noise."[5]

Primarily the act directed study of the noise problem rather than action by the Federal government. This was commented upon by several of the people testifying before the joint hearings of the Senate Commerce Committee and the Subcommittee on Air and Water Pollution of the Senate Committee on Public Works. The general suggestion was made that the time had come to stop studying and start abating noise.[6]

In the First Annual Report of the Council on Environmental Quality (CEQ) submitted to Congress in August of 1970 the CEQ took a somewhat equivocal stand on the desirability of Federal abatement activity in a general sense and suggested that Federal standards should be developed only with regard to Federally supported or guaranteed construction.[7] Beyond this, research and evaluation of choices for abatement were suggested but not actual abatement activities. Since that time the Administration's position on noise abatement activities has changed substantially, as reflected in the President's 1971 Environmental Program.[8] While reiterating that noise abatement is essentially a local problem, the President suggested that in three areas, (transportation vehicles, construction equipment, and machinery powered by internal combustion engines) the Federal government should exercise control and abatement through the mechanism of Federal noise emission standards. Further, the EPA was suggested to be charged with general coordinating authority for all Federal abatement activities.

National Environmental Policy Act

At the Federal level the National Environmental Policy Act of 1969 (NEPA) -- while not directing noise abatement activities by Federal agencies and departments in their actions -- does require that noise, as an environmental factor, be taken into consideration with regard to undertaking any proposed action. The policy of the Congress was expressed in that Act as a:

> . . . continuing policy . . . to use all practicable means and measures . . . in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans.[9]

This policy was carried forth by directing the Federal Government:

> to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may: (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe healthful productive and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; . . . (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; . . .[10]

Perhaps most importantly for purposes of discussing noise abatement programs, the most vital sections of NEPA are 102(1) and (2)(A) and (B):

> Sec. 102. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall -

> (A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;
>
> (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations; . . .[11]

These sections appear to have been overlooked to date; the Federal government is responding primarily to Sections 102(2)(C) and 103.[12] Both of these sections require a specific written product, while Sections 102(1) and (2)(A) and (B) provide for the formulation of new departmental policy. A requirement to produce a written document is far more concrete and its fulfillment more tangible than is the case with a mandate to make sweeping modifications in attitudes, procedures, and policies; furthermore, the former is by no means as difficult as the latter. Therefore, while the relative neglect of such broad procedural changes in comparison with the generation of written statements is lamentable, it is hardly surprising. The implications in terms of social impact of Sections 102(1) and 102(2)(A) and (B) reach beyond those of Sections 102(2)(C) and 103. Sections 102(1) and (2)(A) and (B) will become increasingly important as Federal environmental concern moves forward in such areas as noise abatement where policy decisions must be made from a firm reference point with a clearly defined policy direction.

Department of Defense

In the area of general noise abatement regulation the Department of Defense (DOD) has issued a military standard, MIL-STD-1472A, setting human design criteria which must be met for all new military systems, facilities, and new equipment to be installed. To accomplish this noise abatement effort, the Standard adopts certain publications of the various branches of the military service. These are discussed at other points of this paper under the noise source covered by the particular regulation. In addition to incorporating these documents by reference, the general specification of the Department of Defense places limits on the allowable noise in areas where voice communication is necessary.[13]

The DOD Standard incorporates some, though not all, of the various publications concerning noise which have been issued by the services individually. These publications promulgate regulations and policies with respect to particular noise sources requiring abatement action, as opposed to addressing the problem in general terms applicable to all noise sources. The DOD standard is intended to operate concurrently with the regulations of the individual services. This joint operation leaves open the possibility of conflicting regulation; should there be such a conflict, MIL-STD-1472A presumably would prevail.

To facilitate reference to this document in individual areas of noise generation and to maintain consistency with the discussion of State and local laws on noise abatement, consideration of

Federal activities in the discussion below will be in terms of noise source.

1.1.2 Transportation Noise Abatement and Control

Department of Transportation

In 1966 the Congress created the Department of Transportation (DOT) to develop national transportation policies and programs required for the general welfare of the Nation. Under the DOT Act the Secretary of Transportation was directed to ". . . promote and undertake research and development relating to transportation, including noise abatement with particular attention to aircraft noise; . . ."[14] Pursuant to this directive the Secretary has established two departmental entities to fulfill this R&D function. These are the Office of Noise Abatement within DOT itself and the DOT Noise Abatement Committee consisting of representation from the various administrations under the DOT control umbrella.[15]

The Office of Noise Abatement is charged with developing and recommending noise abatement policies and programs and conducting ". . . such substantive work as clearly and significantly involves more than one mode of transportation." The Noise Abatement Committee, when appropriate, is to develop department-wide posture for noise abatement activities.[16]

Further activities of DOT in noise abatement exist, but not as a primary responsibility of DOT. The actual DOT connection with these efforts is through its overseer function of the administrations incorporated under DOT by the DOT Act of 1966. The discussion of these activities follows.

A. Highway Noise Abatement

Federal Highway Administration

In 1956 the Congress passed the Federal-Aid Highways Act and directed the Secretary of Commerce to carry out the declared policy ". . . to accelerate the construction of the Federal-Aid Highway systems . . . to meet the needs of local and interstate commerce, for the national and civil defense."[17] While the Secretary was allowed to set standards designed to accomplish the objectives of meeting the existing and future traffic needs consistent with safety and economy, he was not authorized to promulgate standards for the protection of the environment or the abatement of noise. In 1962 the Act was amended to add Section 134. This section directed the Secretary to:

> cooperate with the States . . . in the development of long-range highway plans . . . which are formulated with due consideration to their probable effect on the future development of urban areas of more than fifty thousand population.[18]

After July 1, 1965, the Secretary could not approve projects that did not conform to these objectives.

The Bureau of Public Roads, now under the Federal Highway Administration after August 30, 1970, published Policy and Procedures Memorandum 20-8 pursuant to this new Section 134. This set the policy of the Bureau with respect to all Federal-Aid Highway projects that the State or local sponsor seeking aid must consider social, economic, and environmental effects based upon the information which comes to its attention in relationship to the proposed project.[19] Social, economic and environmental effects are defined to include, "noise, air, and water pollution."[20]

Thus, at that point, the Federal-Aid Highways Act granted the same type of regulatory authority to the Secretary of Commerce (later to the Secretary of Transportation) which the National Environmental Policy Act grants to the Council on Environmental Quality today;[21] that is, both Acts essentially directed that the environmental impact must be considered by those undertaking a Federally supported project, but after such consideration both Acts left the sponsors free to finish the project no matter what the environmental impact. Unlike the National Environmental Policy Act the Federal-Aid Highways Act has had this situation corrected so that the Secretary of Transportation now is directed to promulgate standards which will be applicable to all Federal-Aid highways and to set maximum noise levels. This was accomplished by a 1970 amendment to the standards section of the Act by P.L. 91-605.[22] Under this amendment the Secretary of Transportation is directed to submit guidelines to Congress and thereafter promulgate these guidelines:

> to assure that possible adverse economic, social, and environmental effects have been fully considered in developing . . . [any Federally aided highway] project. . . .
>
> . . . the final decisions on the project are [to be] made in the best overall public interest taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects as . . . (1) . . . noise. . . .[23]

In a much more specific context:

> (i) The Secretary . . . shall develop and promulgate standards for highway noise levels compatible with different land uses and after July 1, 1972, shall not approve plans . . . for any proposed project on any Federal-aid system for which location approval has

> not yet been secured unless he determines that such plans and specifications include adequate measures to implement the appropriate noise level standards.[24]

Two groups within DOT and FHWA are working on these standards presently and have issued a draft (see Section 3.1, page 3-6, infra). These groups are a Task Force within the Office of the Secretary of Transportation chaired by the head of the Office of Noise Abatement and an Ad Hoc Committee made up of people from DOT and FHWA within DOT. Activities to date have been devoted to measuring noise levels.[25] Between now and July 1, 1972, when the regulations will be promulgated, the Secretary of Transportation is acting in an advisory role with regard to abatement of highway related noise by other governmental entities at Federal, State and local levels. Within DOT, noise abatement related to highways will be the province of the individual administrations until these regulations go into effect. Presently some members of these committees feel that the California highway statutes should be used as a model for the Federal standards.[26] At the moment all indications are that the standards will not appear in final form prior to the July 1, 1972, deadline.

B. Aviation Noise Abatement

Federal Aviation Administration

This is by far the most regulated area of environmental noise at the Federal level. This is perhaps due to the rapid development of the technology of flight in the last 20 years, combined with the nature of aircraft as major noise producers. This technological development coupled with the course of litigation due to damage to private property from aircraft overflights has virtually forced the Federal government into the regulatory field.

The initial efforts to obtain relief from aircraft noise developed at the local level. Constitutional theories concerning taking of property without compensation provided the first basis upon which relief was sought, in lawsuits wherein it was charged that aircraft noise had destroyed at least part of the beneficial use of a plaintiff's property. This approach is directed toward payment for property damage, rather than any direct reduction of the noise itself; the next step involved efforts of local governments to bring about such actual noise reductions. In order to accomplish this, a number of local governments enacted ordinances which placed restrictions upon allowable aircraft noise levels in various ways.

It was at this point that the Federal government was brought into the fray, through challenges to these ordinances based upon the constitutional doctrines of Federal preemption and burden on interstate commerce. The Federal preemption position rested on the statutory authority in the Federal Aviation Act of 1958, which vested power in the Federal Aviation Administration (FAA) to:

> assign by rule regulation, or order the use of the navigable airspace under such terms, conditions and limitations as he may deem necessary in order to insure the safety of aircraft and the efficient utilization of such airspace.[27]

Since the Federal government considered that it had preempted this field and could often obtain agreement from the courts, the pressure for noise abatement legislation shifted to the national level. The first Federal aircraft noise abatement legislation appeared in the Department of Transportation Act of 1966. Under this Act the Secretary of Transportation was directed to ". . . promote and undertake research and development relating to transportation, including noise abatement with particular attention to aircraft noise, . . ."[28] but authority was not given to promulgate rules to abate noise.

When, in 1968, the Congress began consideration of bills to give the FAA specific noise abatement duties, the Secretary of Transportation declared that, in his opinion, such rule-making authority already existed. In a letter to Congressman Tenzer, the Secretary stated:

> In the event, however, that Congress does not grant certification authority for noise abatement purposes, the Department of Transportation can establish operating rules under Section 307 of the Federal Aviation Act of 1958. Although I feel that such action is a poor substitute for quiet operation which can be built into certification rules, the Department of Transportation will take whatever action is possible and practicable within existing authority and technology.[29]

Indeed, the Administrator of the FAA stated that he already possessed this regulatory authority.[30]

While both of these opinions express a claim to authority to regulate aircraft any such authority had been used only to the extent that agreements had been reached on flight patterns to be followed by the airplane pilot during takeoff and landing -- agreements alone, not rules. These agreements were adhered to or ignored at the discretion of the individual pilot.[31] What was needed was the authority to require noise certification of the elements involved -- the plane, the pilot, the carrier and the airport -- as Secretary Boyd points out in his letter.

This authority was provided, over the objections of the Air Transport Association,[32] among others, by P.L. 90-411 which added Section 1431 to the FAA Act of 1958 and the DOT Act of 1966.

> §1431. Control and abatement of aircraft noise and sonic boom -- Consultations; standards; rules and regulations
>
> (a) In order to afford present and future relief and protection to the public from unnecessary aircraft noise and sonic boom, the Administrator of the Federal Aviation Administration, after consultation with the Secretary of Transportation, shall prescribe and amend standards for the measurement of aircraft noise and sonic boom and shall prescribe and amend such rules and regulations as he may find necessary to provide for the control and abatement of aircraft noise and sonic boom, including the application of such standards, rules, and regulations in the issuance, amendment, modification, suspension, or revocation of any certificate authorized by this subchapter.
>
> Considerations determinative of standards, rules, and regulations
>
> (b) In prescribing and amending standards, rules, and regulations under this section, the Administrator shall--
>
> (1) consider relevant available data relating to aircraft noise and sonic boom, including the results of research, development, testing, and evaluation activities conducted pursuant to this chapter and chapter 23 of this title;
> (2) consult with such Federal, State, and interstate agencies as he deems appropriate;
> (3) consider whether any proposed standard, rule, or regulation is consistent with the highest degree of safety in air commerce or air transportation in the public interest;
> (4) consider whether any proposed standard, rule, or regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply; and
> (5) consider the extent to which such standard, rule, or regulation will contribute to carrying out the purposes of this section.
>
> Amendment, modifications, suspension, or revocation of certificate; notice and appeal rights

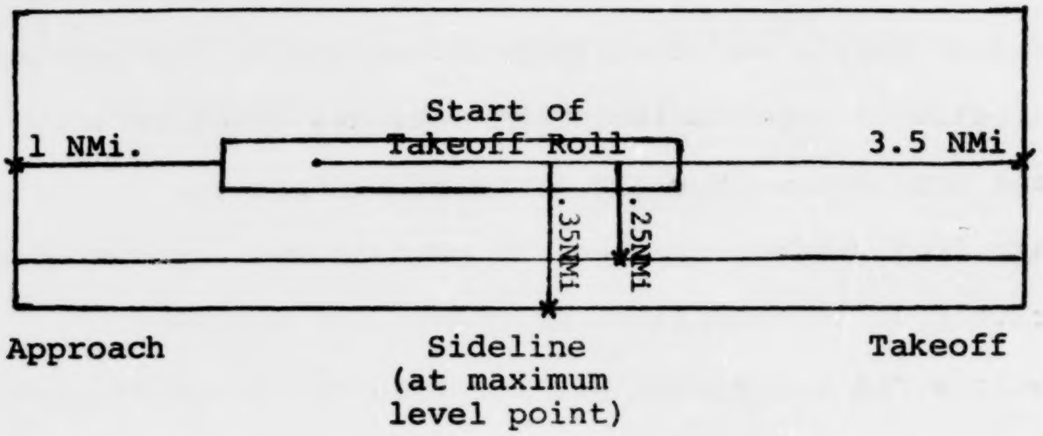
> (c) In any action to amend, modify, suspend, or revoke a certificate in which violation of aircraft noise or sonic boom standards, rules, or regulations is at issue, the certificate holder shall have the same notice and appeal rights as are contained in section 1429 of this title, and in any appeal to the National Transportation Safety Board, the Board may amend, modify, or reverse the order of the Administrator if it finds that control or abatement of aircraft noise or sonic boom and the public interest do not require the affirmation of such order, or that such order is not consistent with safety in air commerce or air transportation.[33]

Under this section the Administrator of the FAA shall issue certificates only if the applicant meets the standards of rules and regulations applied for noise abatement purposes. In promulgating these standards, rules, and regulations, consideration of "the duty resting upon air carriers to perform their services with the highest possible degree of safety in the public interest"[34] must be given by the Administrator, "in a manner as will best tend to reduce or eliminate the possibility of, or recurrence of, accidents in air transportation."[35] Under the type certification authority, tests may be required which are "reasonably necessary in the interest of safety,"[36] and the Administrator may place an expiration date on the type certificate "as required in the interest of safety."[37]

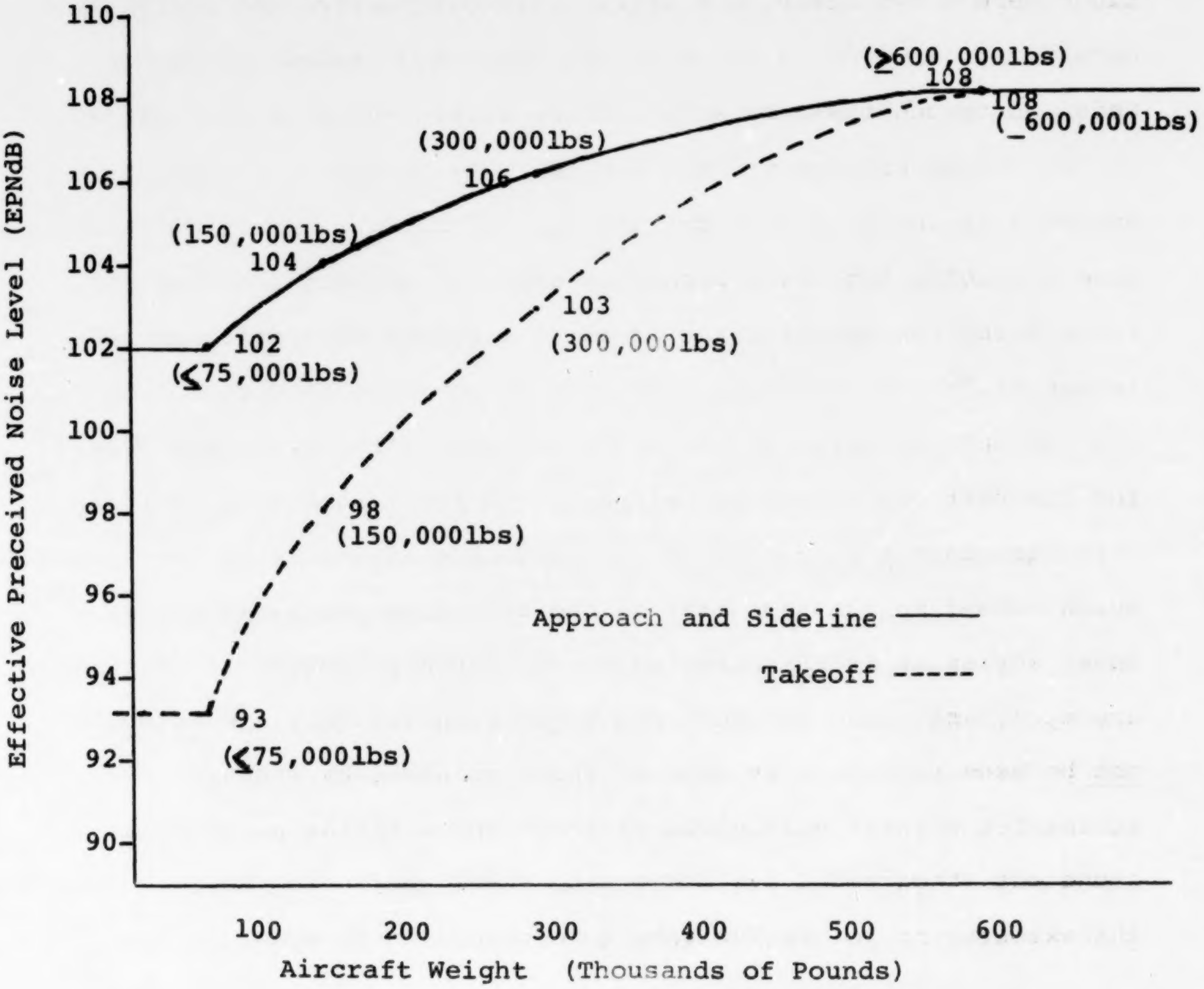
Type certificates apply to an entire type of airplane -- e.g., Boeing 727, DC-9 -- rather than to each individual plane. One craft of a type is used for testing purposes[38] and then all subsequent planes of that type must obtain an "airworthiness" certificate, which the Administrator issues when he is satisfied that the craft meets the type certificate and is in a safe condition for operation.[39] There is also provision for suspension, amendment, or revocation of these certificates when such is required in the interests of safety and the public interest.[40] This action by the Administrator is appealable to the National Transportation Safety Board and from there to the U.S. Court of Appeals.[41]

Using this authority, the FAA promulgated noise standards to be used in type certification procedures on November 17, 1969, which now appear as 14 C.F.R. §36 with certain additions and references to 14 C.F.R. §21. This type certification is applied to domestic and foreign aircraft (being imported into the United States) of the subsonic transport or subsonic turbojet powered category. Type certification covers a new aircraft type or an existing type on which an "acoustical change" is to be made. An acoustical change is ". . . any voluntary change in the type design . . . that may increase the noise levels created by the airplane. . . ."[42] Any aircraft able, but not necessarily required to meet the Part 36 noise standards prior to the acoustical change must still be able to satisfy these standards after the change; the requirement in the case of aircraft not certificated under Part 36 is simply that the aircraft not be noisier after the change than before it.[43]

Elaborate test procedures are established under this section which amount to a measurement of the effective perceived noise level (EPNL) in EPNdB corrected to sea level pressure, 77° F temperature, 70% relative humidity and 0 mph wind velocity. A series of measurements are made at each of three points (six measurements minimum) and these must yield at least three EPNL averages with a range not to exceed ± 1.5 EPNdB with a 90% confidence level. The three measuring points describe a rectangle as follows:[44]



Using these measuring points, the aircraft type must be capable of limiting the noise generated according to the following graph:



Many other factors such as weight of the aircraft, configuration of the flaps, and glide path are specified for the purposes of the testing. Note in the chart that two sideline measuring distances are shown. The .25 NMi distance applies to aircraft of less than four engines and the .35 NMi for the four or more engine category.

To date the regulation has not resulted in great reduction in the noise from commercial aircraft in the aggregate. The Boeing 747, which was in the final stages of development when the regulations were promulgated, was given a two year period (to expire December 1, 1971)[45] in which to meet the above noise standards. This was on the basis of an agreement worked out with the FAA following the provisions of 14 C.F.R. §36.201(1) (which included the Boeing 747) and 14 C.F.R. §36.201(d). Recently other jet aircraft have completed type certification under the standards of Part 36, those being the Cessna Citation and the wide-body DC-10 commercial transport.[46]

It must be noted that a large segment of the projected fleet for the next several years is simply the fleet in existence today, which is made up primarily of pre-wide-body jets such as the Boeing 707-320 B/C, 727, 737, and DC-9. These planes do not fall under any existing FAA noise regulation unless acoustical changes are made, and even then the only requirement is that the aircraft not be made noisier, rather than that its noise be reduced. Thus, if the FAA regulatory program were to stop with the Part 36 noise standards, then there would still be little early improvement in the existing noise problem at major airports. In the Washington, D.C. area, for example, the noise from jets over the downtown area and nearby suburbs might be essentially unaffected for years, since Washington National Airport is used primarily by the 727, 737, and DC-9 and such use is expected to continue.

Fortunately the FAA noise abatement program addresses more than the new type aircraft. The schedule for rule-making (see, infra., p. 1-21) includes regulations requiring retrofit of existing aircraft, type certification of civil supersonic aircraft, prohibition of overland flight causing sonic boom from civil aircraft, and regulation of the noise for STOL and VTOL type aircraft.[47]

The most relevant with regard to an early rollback of existing noise and the most controversial proposal presently is that which seeks to require retrofit of the existing type certified subsonic turbofan engine powered airplanes as a condition to further operation of these airplanes. The authority to undertake such rule-making clearly was intended as part of P.L. 90-411 (49 USC 1431).[48] In the Advanced Notice of Proposed Rule Making for retrofit, the Administrator of the FAA notes:

> . . . the obvious public need for relief. It was the noise of the current fleet of aircraft that, in large part, led to the enactment of PL 90-411 and with respect to which the public need for protection is clearly the most urgent.[49]

Apparently the FAA is deeply committed to these programs of noise abatement at its source for this commitment is restated in the retrofit advance notice to the extent that the FAA intends to use "every legal regulatory technique."[50] The noise from the existing fleet is seen as a "deterrent to the development of new airports,"[51] as well as having been the motivation behind P.L. 90-

411. To achieve this retrofit noise reduction two alternative approaches to regulation are touched upon: (1) prescribe the entire modification scheme and equipment so that the means of compliance would be clear to the carriers; or (2) set the conditions which must be met by the retrofitted plane without setting the means to achieve the reduction in noise thereby allowing flexibility of technologies.[52]

Notably the Administrator requests comment on the meaning of the phrase, "economically reasonable" which appears in 49 USC 1431:

> This assessment of economic and public relief factors to determine whether an economic penalty should be imposed by regulation, and the determination of how great that penalty must be, are among the most difficult judgments to be made under PL 90-411, and are of particular importance under a retrofit program in which aircraft may be taken out of service or burdened with costs that were not factored into the original design and purchasing decisions concerning those aircraft.[53]

At this time the comments from the public have not been made available but some of the response from the industry can be discovered in other places, notably Congressional hearings on new legislation in the noise abatement area. Here the Air Transport Association speaking for the scheduled airlines proposes more research and development prior to such regulation.[54] At the present time the cost of retrofitting the existing U.S. fleet is estimated at between $1-2 billion; however, this figure is an overestimate of actual retrofit requirements since it considers all planes presently in commercial operation rather than taking into account the partial replacement which will have occurred in a few years.[55]

The two proposals for rule making in the SST/Sonic Boom area have not raised the public controversy that the retrofit proposal has primarily because of the defeat of the SST development bill by the Congress. Nevertheless these proposed rules do exist and the process of rule making is going forward. The civil supersonic aircraft type certification rule is in the Advance Notice stage so no formal outline of the proposed rule language exists, but the FAA has taken a definite stand that noise ceilings will be placed on such aircraft. Comment from the public was invited concerning the application of the 14 C.F.R. §36 type certification procedures for subsonic aircraft to supersonic transports. A definition of "economically reasonable, technologically practicable, and appropriate for the particular type of aircraft" was requested as well as comment on the role that such phraseology should play in the SST type certification area.[56]

FAA regulation in the sonic boom area is further advanced, a notice of proposed rule making having been issued April 16, 1970. Here the production of a sonic boom is prohibited without prior permission of the FAA under a written permit. This permit will only be issued for research and development purposes for "necessary" flights,[57] or for normal operations when the applicant:

> shows conservatively that the flight will not cause a sonic boom to reach the surface of the United States, excluding the territorial waters thereof, . . .[58]

It would seem that under this authority the FAA can effectively do that which the Congress has not seen fit to do; eliminate sonic boom from the environment and perhaps eliminate SST's, domestic or foreign, from the United States. Whether this will be the effect and whether the courts will accept this activity of the FAA is a question only time can answer.

The activities of the FAA under the authority of 49 USC 1431 (P.L. 90-411) may be summarized by the schedule of rule making in the noise abatement area:[59]

	Advanced Notice Proposed Rule Making	Notice of Proposed Rule Making	Rule Promulgated
Subsonic Aircraft Type Certification			December 1, 1969
Civil Aircraft Sonic Boom		April 16, 1970	projected 3rd Quarter 1971
Supersonic Aircraft Type Certification	August 6, 1970	projected 3rd Quarter 1971	projected 2nd Quarter 1972
Civil Airplane Retrofit	November 4, 1970	projected 2nd Quarter 1972	projected 4th Quarter 1972
STOL Type Certification	projected 4th Quarter 1971	projected 2nd Quarter 1972	projected 4th Quarter 1972
VTOL Type Certification	projected 1st Quarter 1972	projected 3rd Quarter 1972	projected 4th Quarter 1972

In addition to the noise abatement scheme that is underway pursuant to P.L. 90-411 (49 USC 1431), the FAA has a valuable tool available to reduce noise impacts via the Airport and Airways Development Act of 1970.[60] Under this Act the Secretary of Transportation was required to formulate a "National Airport System Plan,"[61] which is designed to aid the development of public airports until at least June 30, 1980. Factors of mandatory consideration included:

> . . . the relationship of each airport to the rest of the transportation system in the particular area, to the forecasted technological developments in aeronautics, and to developments forecasted in other modes of intercity transportation.[62]

While this has latent possibilities for introducing environmental design arts into the formulation of the report, the Act more specifically directs that the Secretary consult with the Council on Environmental Quality and the Secretaries of HEW, Agriculture, and Interior and incorporate their recommendations "with regard to the preservation of environmental quality . . . to the extent . . . feasible. . . ."[63] into the plan.

Also in the area of recommendations and reports the Act establishes the Aviation Advisory Commission to:

> . . . formulate recommendations concerning long-range needs of aviation . . . recommendations concerning surrounding land uses, ground access, airways, air service, and aircraft compatible with such (National Airport System) plan.[64]

These recommendations are to appear in a report to the President due on January 1, 1972.

A very important aspect of the Act concerns the granting of Federal financial assistance to airport planning in much the same manner that the Highway Trust Fund is used to grant monies to states for building highways. A trust fund is established from which the Secretary of Transportation, "in order to promote the effective location and development of airports and the development of an adequate airport system plan . . ."[65] may grant monies to state public agencies according to a certain schedule of apportionment.

To initiate the grant process a public agency must submit an application, but such application cannot be considered if it proposes airport development not included in the national airport system plan. The development applied for must meet any standards promulgated by the Secretary of Transportation including those for site location and airport layout, two factors which could be used to reduce noise exposure in surrounding communities from operations at the airport.[66]

In order to approve an application the Secretary must be satisfied that the project is "reasonably consistent"[67] with plans of planning agencies for the vicinity of the airport.

> No airport development project may be approved by the Secretary unless he is satisfied that fair consideration has been given to the interest of communities in or near which the project may be located.[68]

In this regard if the project is the selection of a new airport site, if it is a non-metropolitan area,[69] the communities in which the airport is to be located have a de facto veto power over the approval of the Secretary for a grant application. That is, the Secretary may not approve an application for such a new site if the communities have not approved the site proposed. In all such site selection cases and situations where a new runway or a runway extension is planned, the sponsors of the project must afford the opportunity for public hearings which must include consideration of the economic, social, and environmental effects of the project.

Encompassing this entire process of application, hearing, and approval at all levels is the declaration of a national policy:

> . . . that airport development projects authorized pursuant to this part shall provide for the protection and enhancement of the natural resources and the quality of environment of the Nation.[70]

The Secretary may not approve a project found to have an adverse environmental impact until he has issued a written statement that there is ". . . no feasible and prudent alternative . . ."[71] and that all possible steps have been taken to minimize the environmental damage.[72]

But far and away the most significant portion of the Act in terms of potential use to abate noise is a provision that requires approval from the Governor of the state in which the project is located if the project is either for a new airport, a new runway, or an extension of an existing runway. This certification by the Governor is granted when he finds that:

> . . . there is reasonable assurance that the project will be located, designed, constructed, and operated so as to comply with applicable air and water quality standards.[73]

This section gains importance for noise abatement purposes when one notes that some states now consider noise as an air pollutant and thus have air quality standards concerning noise. One example is New York. On the other hand, several states have written noise statutes separate from air quality laws, an example being California. States in this category generally have written more sophisticated laws, from a technological point of view.

Under the section of the Act noted above these more sophisticated State laws could not be incorporated into the Governor's decision process since the noise standards would not be an "air and water quality standard." However, the less sophisticated State laws, which have considered noise as an air pollutant, have provided a perhaps fortuitous avenue for consideration of noise with respect to new airports, new runways, or extensions of existing runways.

However, for the Airport and Airways Development Act to be helpful in noise abatement efforts there must first be increased intensity of noise abatement effort by the Federal government, particularly in the field offices which naturally have the greatest contact with the local public agency sponsors of airport development. The Act alone will never be able to solve the aircraft noise abatement problem, simply because it cannot deal with the source of the noise, the aircraft itself. This must be done under the authority of P.L. 90-411. But the Airport and Airways Development Act can provide the Federal impetus for more sophisticated approaches by State planners to the concepts of land use planning and airport design for noise abatement purposes. Neither Act alone can accomplish the goal of an efficient airport that has no noise problem, but the combination of the two Acts through retrofit and meaningful land use planning could lead to an approximation of this result.

Air Force

The Air Force has issued several regulations, specifications and planning manuals related to noise. Generally, these documents take the directive thrust of insulating humans from the noise produced by an activity or device instead of trying to limit the noise at the source. In the area of aircraft-related noise, impingement on humans is reduced within the aircraft by requirement in procurement procedures that the noise exposure be limited according to a set of Noise Criteria curves.[74] The permissable noise level inside the aircraft measured in dB is a function of the duration of the exposure and the presence or absence of personnel protective gear in the form of ear plugs, muffs or standard head gear. The levels vary from a high of 125 dB for a fifteen minute exposure with standard head gear to 68 dB (NCA 70 Curve) for special military missions with no ear protection.[75]

In terms of the exposure of persons on the ground, aircraft noise control activity has been directed toward land use control to reduce the exposure. In 1964 the three services jointly issued a planning manual for civil engineering purposes, "Land Use Planning with Respect to Aircraft Noise."[76] While this document was intended to be used as a guide for land use planning rather than to establish noise standards for the aircraft operations of the military services, the need for "uniform practices in assessing aircraft noise problems"[77] was recognized. The planning manual established a procedure for determining the noise exposure in the areas surrounding the airfield. Measurements were not directed but rather a set of noise contours were set out for each type of aircraft that might be operating. From these standard contours one could determine the CNR exposure through the use of PNdB figures given on the contour graphs for a given point. By use of this procedure it was expected to be possible to determine whether adverse community reaction to the operations would occur, correlating community response to the value of CNR. But the entire thrust of the planning manual was in terms of stopping the encroachment of communities on aircraft operations, not in terms of preventing exposure to the noise in order to benefit the living situation of the surrounding communities.[78]

While the tri-service manual gave no directives in terms of actions to be taken to abate noise or at least its impact on the surrounding community, Air Force Regulation 55-34, of February 5, 1971, established policy directives to Commanders in charge of airbases and outlines specific procedures that should be attempted in order to "take every precaution to protect communities near Air Force bases from the annoyances and risks associated with flight operations."[79] The methods directed include takeoff and landing techniques, traffic patterns, preferential runway use and an extensive logging procedure for operations at supersonic speeds, particularly in terms of sonic boom incidence. It is important to note here that the Air Force accepts responsibility for restitution and payment of claims for damage to property from sonic boom.[80] Forms recording the occurance of supersonic flight must be filed and retained for 30 months for cross-reference with complaints about sonic boom damage. Combat, combat support missions or flight over water with no approach to land closer than 50 miles are exempted.[81]

In one minor area the Air Force has attempted to reduce aircraft noise at its source, but in terms of the impact of that noise on the communities surrounding the air base there is little if any significance to the abatement measure. The regulation outlines the characteristics of noise suppressors that must be used during engine runup tests on the ground.[82] Such suppressors must cut the near-field noise (in the immediate vicinity where ground crews would be working) to 117 dB in the 2000 Hz octave band (essentially an NC curve of 117 dB) and 70, 83, or 92 dB for far-field measurements depending on the grade of the aircraft being tested. Such measurements must be taken at 36 points in a circle around the test site and no single point may measure above these values.[83]

1.1.3 Occupational Noise Abatement and Control

Department of Labor

The landmark legislation in the area of occupational noise abatement was enacted in 1942 and is known as the Walsh-Healey Public Contracts Act. This Act establishes minimums for working conditions of employees of contractors supplying the Federal government with materials, supplies, articles, or equipment under contracts in excess of $10,000. The language under which the occupational noise limits are authorized appears at 41 USC §35(e), to wit:

> . . . no part of such contract will be performed nor will any of the materials, supplies, articles, or equipment to be manufactured or furnished under said contract be manufactured or fabricated in any plants, factories, buildings, or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of said contract. Compliance with the safety, sanitary, and factory inspection laws of the State in which the work or part thereof is performed shall be prima-facie evidence of compliance with this subsection.

It was not until May 20, 1969 that this language was interpreted by the Secretary of Labor to provide the impetus for occupational noise regulations by that department. These regulations provide that, if the noise that employees are exposed to exceeds the values in the chart below, then a "continuing, effective hearing conservation program shall be administered."[84] That is to say, first, "feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table."[85] Finally, there is an absolute maximum of 140 dBA on all sounds, no matter how short their duration.

TABLE 1

Permissable Noise Exposures

Duration per day, hours	Sound level dBA
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

Compliance with these standards does not release a contractor from his responsibilities under any applicable State or local law; the Walsh-Healey noise exposure standards do not preempt concurrent noise abatement regulation on lower governmental levels. The specific language of the Walsh-Healey Act noted above in regard to compliance with State law was interpreted by the Secretary of Labor in Part 50-204 to mean that:

> Compliance with the standards expressed in this Part 50-204 is not intended, and shall not be deemed to relieve anyone from any other obligation he may have to protect the health and safety of his employees, arising from sources other than the Walsh-Healey Public Contracts Act, such as State, local law or collective bargaining agreement.[86]

If a contractor fails to comply with these standards he may lose his position on the list of eligible bidders for Federal contracts for a period of three years, thereby removing him from the market for Federal contracts for that period of time.[87] (For further discussion of the Walsh-Healey Act see Section 3.1, infra., p. 3-7).

Note, however, that these regulations apply only to Federal Supply Contracts and not to Construction Contracts. While one cannot make a general prediction about the noise levels in operations under supply contracts, it is reasonable to expect that the general construction contract for the Federal government would always involve a noise exposure that would be close to if not actually a violation of these regulations as conditions presently exist on construction sites. Federal construction contracts have just recently come under the same standards as supply contracts with the advent of 40 USC 333 and the regulations promulgated by the Secretary of Labor pursuant to that section published in the Federal Register.[88]

The new Occupational Safety and Health Act of 1970[89] which became effective April 28, 1971 authorizes the Secretary of Labor to "set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce. . . ."[90] This is a very wide grant of administrative authority in view of the U.S. Supreme Court's definition of a business affecting interstate commerce.[91] The Congress took this step because they found that:

> personal injuries and illnesses arising out of work situations impose a substantial burden upon, and a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.[92]

Very broad standard promulgating authority is granted including the authority to issue emergency standards to deal with a particular situation that comes to the attention of the Secretary of Labor. In response to the directive to promulgate standards which already are "national consensus standards" or "established Federal standards"[93] the Secretary of Labor carried over the Walsh-Healey standards at 41 C.F.R. §50-204.10 on May 29, 1971, to be now applicable to all businesses affecting interstate commerce.[94]

Walsh-Healey and the Occupational Safety and Health Act differ in applicability in a way that has resulted in producing much more meaningful noise abatement regulations under the new Occupational Act. Since the penalty of removal from a bidder's list is not available outside the framework of government contracting, the penalties under the Occupational Safety and Health Act utilize civil and criminal sanctions against violators of the law to ensure compliance. The potential penalties include civil fines up to $10,000 if the violations are willful or repeated, criminal penalties up to $10,000 +/or imprisonment up to six months if the violation caused the death of any employee ($20,000 +/or one year if second conviction), criminal penalties for an unauthorized disclosure of an upcoming inspection of up to $10,000 +/or six months imprisonment, and criminal penalties for false information or failure to post required warnings of up to $1000 +/or six months imprisonment.[95] The determinations of civil liability are made by the Occupational Safety and Health Review Commission, judicial review being available to the U.S. Circuit Court of Appeals or the U.S. Court of Appeals for the District of Columbia.[96]

One very interesting feature of the Occupational Safety and Health Act concerns the procedure by which a state can take over the regulatory field with its own plan for providing for occupational safety and health. This need not be done with respect to all occupational safety and health issues at once but can be done for an individual matter such as occupational noise.[97] Plans for such a program are submitted at any time to the Secretary of Labor who can approve any plan which in his judgment:[98]

> 1. designates a State agency . . . for administering the plan throughout the state,
>
> 2. provides for the development and enforcement of safety and health standards . . . which . . . are or will be at least as effective in providing safe and healthful employment and places of employment as the [Federal] standards . . . and which standards, when applicable to products which are distributed for use in interstate commerce, are required by compelling local conditions and do not unduly burden interstate commerce.
>
> 3. provide for right of entry and inspection . . . at least as effective as [the Federal structure] . . . and includes a prohibition on advance notice of inspections.
>
> 4. contains satisfactory assurances that such agency . . . [has] or will have the legal authority and qualified personnel necessary for the enforcement of such standards.
>
> 5. gives satisfactory assurances that such State will devote adequate funds to the administration and enforcement of such standards.
>
> 6. contains satisfactory assurances that such State will, to the extent permitted by law, establish and maintain an effective and comprehensive occupational safety and health program applicable to all employees of public agencies and the State . . . as effective as the standards . . . in an approved plan.
>
> 7. requires employers in the State to make reports to the Secretary [of Labor] . . . as if the plan were not in effect, and
>
> 8. provides that the State agency will make such reports . . . as the Secretary shall . . . require.

A state attempting to accomplish this takeover is afforded a hearing. Once the Secretary of Labor has approved a plan he continues to exercise authority over occupational safety and health matters in that state for at least three years while he assures himself that the State plan which is also in operation is being carried out effectively. Once he relinquishes control over that state with respect to the State plan the regulations and provisions under the Occupational Safety and Health Act cease to apply to the extent supplanted by the State plan. A method of this type assures that a State program is working effectively prior to replacement of the Federal program. Although the burden of determining when a standard is a burden on interstate commerce is placed on the Secretary of Labor, at least State noise abatement programs are not precluded before a chance is given such activities.

This is the present extent of noise abatement activities by the Secretary of Labor. However, his lead has been followed by many other agencies and departments, and the noise standards under the Walsh-Healey Act are perhaps the most widely accepted noise abatement tool within the Federal government and are adopted formally or informally by a number of other agencies.[99]

Department of the Interior

In a more explicit fashion the Walsh-Healey noise standards have been adopted by statute for the Department of the Interior through the Bureau of Mines for application to underground coal mine operations.[100] In addition to applying these standards, the Bureau of Mines went further and called on the Secretary of Health, Education, and Welfare to establish test procedures for inspection of the noise levels in coal mines, such tests to be conducted by the operator of each mine with the aid of "a qualified person."[101] Such tests must be conducted each six months with the results certified and reported to the Secretaries of HEW and Interior. Any protective device or system that the mine operator wishes to use to protect the employees from noise in excess of the Walsh-Healey standards must meet with the approval of the Secretary of the

Interior.[102] These standards appear in the Federal Register of July 7, 1971,[103] and detail the methods and equipment that must be used for tests.

Going beyond the Walsh-Healey regulations, the Bureau of Mines has promulgated a more specific framework for directing the corrective actions of a mine operator found to be in violation of the standards.[104] Under this framework, following a notice of violation issued by the Department of the Interior based on the results of a noise survey of the mine, the operator of such mine has 60 days in which to submit a plan for a hearing conservation program which must meet with the approval of a joint committee of the Bureau of Mines and the Department of Health, Education, and Welfare.

Atomic Energy Commission

The Atomic Energy Commission has adopted a number of standards relating to operational safety in AEC Manual 0550-01 OS.[105] The Director of the Division of Operational Safety is charged with providing health and safety guides. To accomplish this task he may adopt any applicable "nationally recognized health and safety guides"[106] or may amend such or adopt new guides to provide for operational safety. Included in his authority is the power to grant a variance, "when justified." After the adoption of such standards, these are applicable to "Headquarters, Field Offices, AEC contractors (and subcontractors) (pursuant to appropriate contract provisions), and military and civilian personnel of other Government agencies assigned to the AEC," and the standards apply to existing facilities "where changes, alterations and modifications are made."[107]

The directors of the division of Naval Reactors, Space Nuclear Systems, Technical Information, and Headquarters Services and the managers of Field Offices are directed to apply these standards that the Division of Operational Safety adopts. Managers of Field Offices and the Director of the Division of Headquarters Services

> may prescribe additional or more stringent standards based upon determination that such standards are essential to safety and proper performance of these functions.[108]

If any conflict between standards should arise, the more stringent standards shall apply, that is, "the standard providing the greater protection." Further authority is granted to these managers and the director of the Division of Headquarters Services in the area of exemptions; temporary exemptions may be granted when:

> such actions will best serve the interests of the AEC, providing that the safety of employees, the public, and Government and private property can safely be maintained.[109]

Communication with the Division of Operational Safety is required with respect to variances issued by managers and the Headquarters Services Director. For temporary variances, notice must be given within 30 days although no time limit is set on the duration of such temporary variances. Permanent variances may be initiated at this level by request and justification in writing but such permanent exemptions must issue from the Division of Operational Safety.

Under this procedural and structural umbrella the Director of the Division of Operational Services has adopted the Walsh-Healey regulations found at 41 C.F.R. §50-204 including §50-204.10 on occupational noise exposure, and the Federal Aviation Regulations including 14 C.F.R. §36.[110] He has recommended to the managers of

Field Offices and the Director of the Division of Headquarters Services for adoption under their authority, "Rating Noise with Respect to Hearing Conservation, Speech Communication, and Annoyance," (International Standardization Organization), "Industrial Noise Manual" (American Industrial Hygiene Association), and "Guide for Conservation of Hearing and Noise" (American Academy of Ophthalmology and Otolaryngology).

Air Force

In addition to its aircraft noise reduction program, the Air Force has issued regulations relating to exposure to hazardous noise.[111] These regulations establish test procedures, including an initial reference hearing test for all employees, military or civilian. Maximum noise exposures are prescribed for short term exposures up to eight hours and for life time exposures which relate to the continuous noise level in a work situation. For this life time exposure limit 85 dB is the cutoff point at which ear protection is recommended, 95 dB is the level at which such protection is required. No measuring distance from a noise source is specified clearly, but it appears that the noise is measured where the person subject to the noise is located.

For short term exposures of up to eight hours a Walsh-Healey type measurement technique is established. The standard, in terms of Limiting Equivalent Exposure Time (LEET), recommends ear protection for an 85 dB level over an eight hour period and requires such protection for 95 dB or more over the eight hour period. Both this regulation and the Walsh-Healey standards set absolute maxima (to cover short duration noises) but the Air Force standard is 10 dB higher at 150 dB. But AFR 160-3 goes further to set a maximum level measured at a point in the ear canal of 135 dB, meaning that even if the level is below 150 dB it must be lowered by use of ear protective devices to 135 dB in the ear canal even for the shortest duration sounds. Ear protective devices in general must bring the noise exposure within the allowable LEET levels.

Hearing acuity tests must be made once a year for every employee as long as he is employed,[112] whereby hearing damage may be detected by means of shifts in sound perception thresholds. When such damage is discovered, and if the loss of hearing is severe enough, then the individual is reassigned to a noise-safe job area or referred to a diagnostic hearing center for treatment. Compensation for hearing loss is not mentioned in AFR 160-3.

Department of the Navy

The Department of the Navy has adopted guidelines for permissable noise exposure similar to those adopted by the Air Force at AFR 160-3.[113] There are some important differences, however.

The Navy regulation (OPNAVINST 5100.14) which is part of the Navy Shore Safety Program, delineates "hearing-hazardous areas" determined on the advice of an industrial hygenist or Medical Officer to the commanding officer of a naval installation. This advice is formulated on the basis of a noise survey directed by the regulations and pursuant to this advice the commanding officer makes the designation of the hazardous areas and must then proceed to institute action to abate the noise to an acceptable level or, in the event that this cannot be done, move to protect the hearing of workers in the area.

The steps that the commanding officer may take to abate noise are delineated:

> (1) By engineering design . . .
> (2) By dampening the noise by means of lamination, mufflers, . . . insulation . . . or application of acoustic materials
> (3) By acoustical enclosure of the offending noise producer
> (4) By isolation of the . . . noise producer . . . to affect fewer personnel
> (5) By substitution of lower noise-producing operations.[114]

After these steps have been followed the noise exposure is then limited by adoption of the pertinent Walsh-Healey regulation. Reference Audiograms as in AFR 160-3 are to be taken "to the extent feasible." A program of education on noise hazards is also directed to make personnel more aware of the noise danger and acquaint them fully with the use of hearing protective devices called for under the regulations.

The above regulation is applicable only to shore activities. Activities at sea are covered along with "all commands and activities having high intensity noise levels and all military and civil service personnel," by a hearing conservation program from the Navy Bureau of Medicine and Surgery, BUMEDINST 6260.6B, 73-NER-bl, 5 March, 1970.[115] Again the responsibility for noise abatement is placed on the commanding officer. While the instructions under this regulation are substantially the same as those just discussed under OPNAVINST 5100.14, differences do exist. Notably a Criterion Level is established above which a hearing conservation program is mandatory. This level is 90 dBA measured as close as possible to the ear position of personnel exposed to the noise. Ear protection requires ear plugs if the 90 dBA level is passed and both ear plugs and circumaural devices such as ear muffs are required where the level exceeds 120 dBA. Areas in which protective devices are to be worn are also required under this regulation to be so marked.[116] Again there are provisions for audiometric reference audiograms and test procedures as in AFR 160-3 for periodic checkups. The Walsh-Healey standards are once again incorporated but most notably the 140 dBA limit on instantaneous noise is excluded. This is quite obviously because of the impact noise of gunnery operations, which are handled in the regulation by making the use of ear protection devices mandatory at all times.

In the area of aircraft noise this regulation has had the effect of generating NAVAIRINST 6260.1, AIR-41623, 24 February 197 1971.[117] The duties on the commanding officer direct that he appoint a Hearing Conservation Officer who may be either a military or civilian employee and who is charged with the duty of conducting a semiannual survey to identify all excessive noise sources. The results of these surveys are to be reported to the NAVAIR supervisor with authority and the Public Works Department. The actual noise abatement duties on the commanding officer are limited to developing "such minor construction, equipment installation or military construction projects as may be deemed necessary to abate excessive noise."[118]

1.1.4 Construction Noise Abatement and Control

A. Construction Site Noise Abatement

Department of Labor

Construction noise is considered by the Federal government under the Construction Safety Act, 40 USC §327, *et. seq.*, which sets out at section 333:

> It shall be a condition of each contract which is entered into . . . for construction, alteration, and/or repair, including painting and decorating, that no contractor or subcontractor . . . shall require any laborer or mechanic employed in the performance of the contract, to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under construction safety and health standards promulgated by the Secretary [of Labor]. . . .[119]

Under this authority the Secretary of Labor carried over the Walsh-Healey occupational noise standards on April 17, 1971.[120]

General Services Administration

The General Services Administration (GSA) has adopted several policy measures relative to noise abatement through the mechanism of contractual directives and responsibilities of contractors on buildings for the Federal government. These policies address the actual construction process noise and the acoustical characteristics of completed buildings. Acoustical characteristics specifications adopted by GSA are discussed at page 1-51, infra.

By specific integration into the contract GSA is attempting to carry out the wishes of Congress in the Construction Safety Act of 1969, which extended the Walsh-Healey noise regulations to Federal construction contracts. In the example furnished, the United States Court House and Federal Office Building in Philadelphia, Pennsylvania, the contractor was required, five times a day, to take noise readings at the periphery of the construction site at the noisiest place, except as directed by the Contracting Officer. For these test purposes the General Radio Company's publication, Handbook of Noise Measurement, Table 3-6 is taken as a standard to define what is to be considered as excessive noise. The contractor "shall take such action as may be appropriate and effective to reduce or eliminate unnecessary noise and to reduce noise determined to be excessive."[121] The Contractor is only to take such actions after he has obtained a written change order from the Contracting Officer so that he may recover his costs plus a reasonable profit on those costs if the contract contains a standard changes clause. Thus, the burden of reducing the excessive noise on construction sites under Federal construction contracts is borne by the Federal government, with the responsibility for determining that such noise exists resting on the Contractor.

Note that this entire noise reduction system is under the conditions of the contract and represents a departmental policy which could be changed at any moment and which is not enforcable by those not in privity of contract. Therefore, there is no mechanism whereby the public or the local public officials can attempt to force the Contractor and the Contracting Officer to abate excessive noise on Federal construction sites. GSA can hardly be condemned for this, however, since the Philadelphia court house contract is an experimental contract to implement the dictates of the Construction Safety Act, 40 USC 333. The clause was inserted to obtain baseline data on the noise that construction workers are subject to on the job, not only the aggregate noise level but the coincidence noises from several phases of the work operating simultaneously. The feelings of the Public Building Service are that once this base line data is completed (which will take perhaps two more years, since the building was just recently started) then decisions can be made about timing the sequence of work on such construction job so that multiple source exposure can be avoided. This particular clause has been used only in this one GSA contract. It is available as required for further contracts, but its use is not contemplated until the results from the construction of the Philadelphia Court House are obtained and analyzed.

Department of the Army

The Department of the Army has adopted a policy:

> . . . for use in all Civil Works construction contracts other than dredging to eliminate or reduce degradation of the environment during and resulting from construction operations in consonance with the letter and the spirit of (NEPA). . . . [122]

The manner in which this protection of the environment will be brought about is by incorporation into the technical provisions of construction contracts of a separate section dealing with the environmental protection measures to be carried out during and after the construction.

The responsibility for writing these contract clauses is placed on the District Engineers of the Corps of Engineers. Each District Engineer has the authority to provide payment to the contractor as compensation for carrying out these specifications. Noise is listed as a separate type of environmental pollutant in the list of "common potential sources of environmental degradation."[123]

> 9. Noise Pollution. This area of pollution includes a wide range of causes, from faulty mufflers on equipment to use of explosives. Noise is most serious in urban areas and in enclosed operations. The proposed project should be studies for areas of possible noise pollution which should be covered specifically in the specifications.[124]

In the actual body of the technical provisions suggested, environmental pollution is given a broad definition to include chemical, physical, or biological elements or agents, adversely affecting human health or welfare, unfavorably altering ecological balances, affecting other species of importance to man, or degrading the utility of the environment for aesthetic and recreational purposes.[12]

The specifications are made applicable to all contractors and subcontractors.[126] They must comply with specific directions in the contract, the Engineers Manual, and all applicable Federal, State and local laws and regulations.

The Engineers Manual directs minimization or elimination of "hazardous sound pressure levels in working areas" through planning and design procedures which include alternatives such as muffling devices, insulation, shock mounting, or replacement with a less noisy device.[127] If the sound pressure level in a working area surpasses 85 dB, then protective devices must be worn; if the level exceeds 120 dB, both ear muffs and ear plugs must be worn.[128]

In order to insure the enforcement of this policy, the Corps of Engineers has provided an incentive that is unequalled anywhere in the legal world for its effectiveness: a contractor who does not comply as outlined above will not be paid for his construction efforts until he has complied, *quantum meruit* and an abandonment of the work aside. That is, the contracting officer gives the contractor written notice of non-compliance and the contractor must then take corrective action. If he does not, the contracting officer may issue a stop work order pending such compliance. The stop work order is only reviewable through the legal mechanism of the Armed Services Board of Contract Appeals. The contractor's intentions in the entire affair are a matter of negotiated record since prior to commencement of work the contractor meets with the contracting officer and develops "mutual understandings"[129] concerning the contractor's written proposal for implementation of CE-1300. All in all the system is rather secure and laudable in that if meaningful steps are assured at the beginning, prior to commencement of the work, and written into the contractual agreement then it is quite certain that the procedures to abate noise will be followed.

CE-1300 also has made inroads into the area of military facilities construction contracts. In "Engineer Technical Letter 1110-30141, 30 November 1970," The Acting Chief, Engineering Division Military Construction explains:

> 5. Discussion. Although CE-1300 is intended specifically for civil works projects, the guidance therein, particularly in the instructions, will be helpful in developing the specification provisions of military construction projects.[130]

B. Acoustical Characteristics of Buildings

Department of Housing and Urban Development

The Department of Housing and Urban Development (HUD) has established, both through its subordinate agency, the Federal Housing Administration (FHA), and more recently at the departmental level, policies concerning noise characteristics of buildings and conditions at building sites for which Federal assistance is sought. The best known FHA policy concerns acceptability of residential properties for FHA mortgage guarantees when such properties are located near military or civil airports.[131] Three zones are delineated on the basis of expected response from the community ranging from none to vigorous and persistent protest with concerted group action. The three zones correspond to NEF ranges of greater than 40, between 30 and 40, and less than 30. Such zones have been carried over by HUD in its new noise policy discussed later in this report. The determination of the boundary locations of these zones is the responsibility of the FAA or the military, depending on the nature of the airport.

With this informational input and FAA/military recommendations, FHA Field Offices then make the final decision on the issuance of mortgage guarantee commitments. Decisions at this point are based primarily on the economics of the situation, with marketability of the property as the pivotal point:

> The determination of acceptability of new subdivision proposals must of necessity take the economics of a proposal into consideration. Value may be affected to a degree that a new subdivision proposal would not be insured in amounts which would permit successful marketing of completed properties. If the proposal is not considered feasible, the sponsor should be so apprised during the pre-application discussions.
>
> Existing Properties. It has been administratively determined that existing properties otherwise acceptable are not to be rejected because of airport influences if there is evidence of acceptance in the market. FHA's position is that since the dwellings are in use and are expected to continue so in the foreseeable future, their marketability should be the strongest indicator of their acceptability.[132]

The marketability is determined by an FHA-conducted survey.

FHA activities go beyond mortgage underwriting and include programs to provide financial assistance for certain construction activities. The FHA has considered noise exposure in its minimum property standards for multifamily dwellings since November, 1963.[133] These standards were designed ". . . to encourage the provision of housing projects that meet the special needs of urban families and to protect the interests of the Federal Housing Administration in the projects."[134] The fact that FHA is establishing minimum standards is important to note; that is to say, state and local governments are free to set standards stricter than FHA but for financial assistance the FHA minimum must be met or the objective of the FHA standards must be, "fully attained by the alternate means proposed."[135]

Under these minimum property standards for multifamily dwellings, two types of noise are considered, namely airborne noise and impact noise from direct contact with the building structure. At its inception the standard was in terms of STC (Sound Transmission Class) and INR (Impact Noise Rating). The STC and INR scales unfortunately have opposite scalings, a high STC value indicating good noise protection, while a high INR value indicates poor protection. In the interests of consistency, therefore, it was proposed in 1967 that INR be replaced by IIC (Impact Insulation Class) so that both STC and the impact criteria would indicate greater degrees of quietness in the measurement area as the numberical index increased.[136] As yet, this suggestion has not found its way into the minimum property standards, where INR is still utilized.[137]

The actual standards promulgated using these criteria are themselves interesting in light of the findings of the Berendt, Winzer, and Burroughs report, Airborne, Impact, and Structure Borne Noise-Control in Multifamily Dwellings. Noise reductions are delineated for two classes of room separators: partitions[138] and floors/ceilings. For partitions the STC values range from a maximum of 55 dB loss to a minimum of 40 dB loss as a function of the location of the partition in terms of the rooms it separates.[139]

One major shortcoming of the standards, as is pointed out in the 1967 publication, is that two classes of dwelling areas are recognized, areas with low background noise levels and areas with high background noise level. The standards in the high background situation are typically 5 dB lower in STC than those for low background situations. This practice adopts the curious policy that those living with a high ambient noise level should be made to suffer more exposure to noise than those with a lower ambient level, a philosophy with a counterpart in economic matters, "the rich get richer and the poor get poorer."

While the 1967 Berendt Report recognizes some of the difficulties with this philosophy, it nevertheless continues the practice in its recommended criteria.[140] In fact, the recommended criteria proliferate the ambient noise-class distinctions by delineating three grades of background noise living situations, ranging from the "quiet" suburban and peripheral location which requires the greatest STC and thus insures the quietest dwelling interior, to the "noisy" urban area, "where nighttime exterior noise levels might be about 55 dBA or higher," where the lowest sound transmission losses are provided. The present FHA floor/ceiling standards, in which INR is considered along with STC, follow this approach as well.[141]

Considering this position by FHA the new policy of the parent agency HUD is a welcome change. This new HUD policy supplants, to the extent it sets stricter standards, the existing FHA programs and may eliminate the artificial distinction in the FHA minimum property standards on the relative need for quiet in suburban versus urban locations. This new policy is:

> to foster the creation of controls and standards for community noise abatement and control by general purpose agencies of State and local governments, and to support these activities by minimum national standards by which to protect citizens against the encroachment of noise into their communities and places of residence.[142]

In order to encourage the State and local activity:

> HUD extends such assistance to State and local governments for the alleviation of community noise as may be provided for by the Congress and as appropriate.[143]

Three avenues for reducing noise exposure are taken: 1) financial planning assistance programs require adequate consideration of noise as an integral problem in an urban environment, 2) new construction sites are not approved for financial support if the site is acoustically unacceptable as defined by the standards promulgated, and 3) existing construction may not be rehabilitated (i.e., substantially increasing the life of the building) with HUD financial support unless it comes within the standards. If the alteration in the building is not going to increase the life expectancy HUD "encourages" noise abatement actions in "noisy areas,"[144] but will not provide financial assistance for these actions.

The standards promulgated at this time are interim standards, with final standards to be developed as experience with the interim standards indicates the need and direction to be taken. The interim standards are based on projected noise exposures for five years from the time of application for assistance. It is the responsibility of the various Regional Administrators to see that "appropriate means" are used in making these forecasts. Coordination with other departments and agencies is also the responsibility of the Regional Administrator, particularly where transportation noise exposure is likely to be a consideration in the forecast. If transportation noise is a consideration, consultation with field offices of DOT is specifically directed. The general overseer of this policy is the Deputy Under Secretary in the Office of the Secretary. He coordinates efforts of Assistant Secretaries who are charged to incorporate the policy into HUD activities, evaluate compliance and identify problem areas where more noise abatement is needed.

Standards differ for exterior and interior regions of buildings. The exterior standards classify building sites in four categories:[145]

	CNR	NEF
UNACCEPTABLE	(for airport environs only)	
80 dBA for 60 minutes per 24 hours	95 (runups)	40
75 dBA for 8 hours per 24 hours	115 (takeoffs) (landings)	
Exceptions strongly discouraged, require 102(2)(c) statement.		
DISCRETIONARY-NORMALLY UNACCEPTABLE		
65 dBA for 8 hours per 24 hours	80-95 (runups)	between 30 and 40
Loud repetitive sounds on site	100-115 (takeoffs) (landings)	
Approval requires: 1. Noise attenuation measures 2. Regional Administrator's concurrence 3. 102(2)(c) statement		
DISCRETIONARY-NORMALLY ACCEPTABLE		
65 dBA for 8 hours per 24 hours	80-95 (runups)	between 30 and 40
	100-115 (takeoffs) (landings)	
ACCEPTABLE		
45 dBA for maximum 30 minutes per 24 hours	80 (runups)	30
	100 (takeoffs) (landings)	

The interior performance standards are similar in application to the old FHA standards but may be more limited in that they are applicable to new construction and rehabilitation of existing residential buildings. Specific limits as to acceptability are set for sleeping quarters, measurements to be taken with the windows open. For other areas of the house discretion is left with "HUD personnel" as to the acceptability of noise exposures. Sleeping areas are acceptable if the noise levels:

> do not exceed 55 dBA for more than . . . 60 minutes in any 24-hour period and do not exceed 45 dBA for more than 30 minutes . . . from 11 pm to 7 am and do not exceed 45 dBA for more than . . . 8 hours in any 24-hour day.[146]

To this point it would still appear that the FHA and HUD standards could co-exist, but at the end of its new policy circular HUD places a minimum STC value of 45 dB on all multifamily structures for both walls and ceiling/floor divisions.[147] This paragraph may act to replace the entire FHA Minimum Property Standards system, a result which would certainly be acceptable in light of the questionable features of the FHA standards with respect to the noise levels that one should be expected to tolerate within his home.

The levels selected by HUD in this circular seem to reflect a fair assessment of the present technology, but as is most often the case there is a very short time horizon of thought with regard to the technology of noise abatement. The HUD circular adopts the present state of the art but fails to anticipate or encourage a continuing technological development in noise abatement. This is a criticism that can be made of every Federal noise abatement program and one area in which the Federal government could learn from some states.

General Services Administration

As far as the acoustical characteristics of a building are concerned, specifications for the materials to be used and the STC and NC (Noise Criteria) curves ratings that must be achieved are set forth in two portions of the GSA handbook[148] and in three Public Building Service Guide Specifications covering acoustical ceilings, relocatable partitions, and vibration insulation.[149]

These acoustical specifications apply to all contracts for new buildings, extensions, modifications, renovations, alterations, etc. The specific characteristics of the building are determined on the basis of an STC reading or an NC reading. Generally the NC curve is chosen according to the type of room ranging from NC 30 for courtrooms and auditoriums to NC 60 for gear rooms and shops.[150] In office buildings permanent and relocatable partitions must meet an STC of 40 and generally walls of such office buildings should meet an STC of 45. Notably, the GSA is concerned with the low frequency impact of noise as well as the more common range and such walls must provide a sound transmission loss of 35 dB in the 150-350 Hz octave band. Special rooms such as conference rooms, libraries, and training rooms must have an STC of 45 and a vestibule if possible or, if not, a door with an STC of 40. Reverberation is considered and dealt with to the extent that the reverberation time must be less than 0.8 seconds. Also notable are special rules relative to the placement of mechanical and electrical rooms. If such rooms need to provide access into interior office space a door assembly of two doors is required with an STC equal to the walls. Finally, it should be mentioned that GSA has directed that all equipment externally connected with the building must not exceed the specifications imposed on such equipment by any State or local government with jurisdiction over the area of land that the building occupies.

In the area of existing Public Building Service guide specifications for construction contracts, mechanical and electrical equipment rooms in buildings are covered by Guide Specification PBS 4-1515-71 at subheading 4. Here maximum sound pressure levels in dBC are set for rooms housing equipment such as "mechanical, fan, boiler, pump, steam pressure reducing value, engine, turbine, transformer, refrigeration and air conditioning equipment."[151]

The sound levels are taken at a point three feet from the equipment surface in a horizontal direction and at points three and five and one-half feet above the floor and the maximum levels are from 80 dBC at the low frequency end to 73 dBC at the high frequency end, with a 5 dBC reduction in any band where there is a pure tone present. If these levels are exceeded then either the equipment must be altered or acoustical shielding provided to bring the sound level at the measuring points within acceptable levels.[152]

1.1.5 Other Federal Legislation to Abate Noise

Federal Power Commission

There is one final context in which the Federal government has acted to abate noise. The Federal Power Commission under the authority granted by the Natural Gas Act of 1938 has promulgated rules relating to siting of above ground pumping stations for gas pipelines.[153] These regulations require that noise be a consideration in site selection and direct that the facility should be located ". . . in areas where sound resonation would be minimal. Further 'acoustical treatment' should also be considered."[154] These pumping facilities are powered by internal combustion engines operating on natural gas. This is the only regulation of the internal combustion engine at the Federal level other than as part of a regulation concerning a transportation vehicle powered in such a manner. Much more extensive regulation of internal combustion engines at the Federal level has been proposed.

1.1.6 Trends in Federal Noise Abatement Activities

Considering the relative paucity in Federal law dealing with noise abatement up to now, the sheer amount of incipient legislation in this area is perhaps the first trend to note. Beyond this, perhaps the most significant factor to be seen as a trend concerns the potential preemption of State and local activities in this area. Pending legislation intends to preempt the emission standards setting authority for the Federal government (specifically the Environmental Protection Agency), but leave to state and local governments the right to control the ". . . use, operation, or movement . . ."[155] of noise sources. (See discussion, infra, Section 4.) Unfortunately, this language will present legal problems of semantics concerning whether a particular law is actually one controlling use, operation or movement.

The precedents for this approach at the Federal level are not uniform -- that is, in the area of noise abatement there are some existing Federal programs which do preempt state and local government efforts and others which do not. In the preemptive category are the FAA regulations (14 C.F.R. 36 and the proposed program) and legal authority under the FAA Act of 1958. (See discussion of preemption, infra, Section 2.4, page 2-41.) In the non-preemptive category there are examples both in the area of aircraft regulation and the area of occupational noise control. The first of these is the Airport and Airways Development Act of 1970, which gives local communities affected by airport developments (which seek financial assistance under the Act) a de facto veto power over the approval of the Secretary of Transportation concerning the granting of Federal money. (See, supra, page 1-23.) In the occupational noise area the Walsh-Healey Public Contracts Act specifically did not preempt State and local governments.[156] This is also noted in the regulations promulgated by the Secretary of Labor pursuant to this statute.[157]

There is one scheme that is of particular note which would perhaps resolve the fears of the Federal government that noise abatement at the State and local level will not be effective and simultaneously satisfy states who wish to set standards stricter than those of the Federal government. This scheme appears in the new Occupational Safety and Health Act of 1970, which establishes a procedure whereby a state can submit a plan to take over the protection of the health and safety of workers affected by the Federal program. This plan must meet with the approval of the Secretary of Labor, which is only given after the plan has proved as effective as the Federal program over a three-year joint operation period. Once the plan is approved it replaces the Federal program completely. Even this scheme is open to attack, though, by those who fear 50 different standards requiring manufacturers to provide 50 different machines from the standpoint of acoustical characteristics.

One ray of hope for those who fear such fragmentation is found in the area of State vehicular noise limits. Here California has adopted standards that will reduce the noise level substantially over the next 15 years; these standards have been adopted in identical form in Colorado and Minnesota recently, and New York has set limits which are nearly the same. Similarly on the local level, the recently enacted Chicago noise ordinance is being considered now by the Alburquerque, New Mexico city council. The point of these examples is that more and more state and local governments are surveying the existing law prior to enactment of their own laws with the result that a horizontal pattern of legislative uniformity is developing. This should be carefully considered by those charged with responsibility at the Federal level.

Another trend in Federal programs for noise abatement concerns the standards of measurement to be used. These programs initially used criteria that measured sound in decibels or A-weighted decibels, which provides a standard that can be easily measured with relatively inexpensive equipment and produces data that needs no further treatment. This type of criterion has high utility for a situation in which a government has limited funds for noise abatement and little expertise in acoustical engineering. However, such simplified criteria fail to consider several factors concerning environmental noise, and this fact has led to the development of more sophisticated criteria such as the Perceived Noise Level measured in PNdB and the Effective Perceived Noise Level measured in EPNdB. The latter is now in use by the FAA for aircraft noise certification. But these criteria also have shortcomings since they refer to a single event noise level and do not account for the number of events over a period of time which all effect one area. The trend is to make such determinations and the new criteria of CNR, NEF, and CNEL (See Section 1.2) have been developed, all with respect to aircraft.

These units themselves have the disadvantage that they are not easily measured without the assistance of computational equipment. One of the above units, CNEL, to be used in California, has attempted to deal with this problem by basing the unit on dBA which can easily be measured with simple equipment; (see discussion, infra, page 1-71) then through the use of tables this measurement can be converted into a rough approximation of the CNEL value.

In any case, the trend at both the Federal and state levels with respect to aircraft is to use these more sophisticated criteria. At the Federal level the NEF unit is now moving beyond the airport itself and being used for determination of acoustic acceptability of housing located near airports for which Federal financial assistance is sought. (See discussion of new HUD policy, supra, page 1-44.)

Sanctions for violations of noise abatement laws at the Federal level are moving toward criminal and civil punishments to supplant such measures as revocation or suspension of permits. The Occupational Safety and Health Act is an example of this. At this point, however, the majority of Federal programs still provide only the revocation/suspension type sanction.

1.1.7 Gaps in Federal Noise Abatement Activities

Federal noise abatement legislation is currently most notable for its limited coverage of the overall environmental noise problem. The legislative process is slow and usually cautious but the increased public concern about environmental matters coupled with political expediency has nurtured the present proposed legislation. When considering gaps in regulation, it is perhaps most useful to think in prospective terms of what should be done to improve a situation.

In the realm of noise sources to be regulated at the Federal level, two opposing factors should be taken into consideration. These are the advisability of national uniformity versus the desirability of local regulation with enforcement activities in greater proximity to the legislative process. A tradeoff must be made between these two opposing objectives. Regarding noise abatement other factors of the regulatory structure can help to strike this balance, such as the criteria and standards to be used, the manner of implementing a law, and the penalties to be imposed on violators.

There is a need for continued refinement of the noise measurement criteria used at the Federal level, despite the very significant strides made in this area in recent years. Even the FAA Part 36 regulations, which are written in terms of EPNdB, may not be fully adequate in terms of consideration of the noise problems of the various airports in the National Airport System Plan. As for regulating the total noise environment produced by airports, it is noted that currently the FAA is in the process of changing its planning framework from operation in terms of CNR to NEF (see discussion, infra, Section 3.1, page 3-3); this constitutes an advancement, but it should not be forgotten that even the NEF criterion is based upon measures of overt citizen dissatisfaction (e.g. complaints). It is to be hoped that measurements of environmental quality can be advanced beyond this rather negative emphasis.

Notwithstanding the above problems, the single most serious deficiency with respect to the standards and criteria used in Federal regulation of noise does not concern the particular choice of criteria but rather the actual standards established using these criteria. Criticisms are two fold: 1) the standards currently in use are too lenient to effectively bring noise within tolerable limits even for a "reasonable man," let alone a sensitive person. The Walsh-Healey standards are most often attacked because minimal protection at best is provided. The same criticism is leveled against the FAA Part 36 standards which are relatively new. This is a problem of reactive government, taking action at the minimum level to satisfy complaints without anticipating increased sensitivity in the future. 2) Standards presently fail to anticipate technological advances in noise reduction, to say nothing of encouraging advances in technology by directing levels of noise reduction which are not currently attainable under existing technologies. In this regard the Federal government could have a significant effect on noise abatement technology by using step-down standards similar to those in use by many state and local governments. (See Section 1.2 and 1.4, particularly discussion of California with respect to vehicles and aircraft and Chicago regarding vehicle and construction noise, infra, pages 1-71, 1-76 and 1-109, 1-123.)

Implementation techniques at the Federal level are of the license, certificate, noise allowance budget, or required accessory type. Techniques used at the State and local level include all the above as well as property line spill-over limitation, zonal, curfew, noise limits as a function of population density, and anti-degradation or allowances above the ambient level techniques. Many of the techniques used by State and local governments would not suit Federal situations, such as zonal and property line standards, primarily because of the need to be familiar with local problems and situations in order to effectively apply such techniques. Curfew, population density, and anti-degradation techniques could be useful at the Federal level but at present are not so used.

Penalties for violations at the Federal level are not presently framed in terms of criminal and civil punishments, for the most part (see discussion, supra, page 1-31). Such sanctions would increase the value of Federal regulations from the standpoint of providing meaningful compliance with environmental noise abatement legislation.

1.2 NOISE SOURCES REGULATED AT THE STATE LEVEL

1.2.1 General

In the last several years, a number of states have passed acts relating to the environment in response to growing public concern in this area. At the present time, most of this legislation is limited to the establishment of State environmental commissions or agencies, or to the delegation of authority in the area of the environment to existing agencies with the power to set standards and guidelines concerning the control and abatement of pollution in various forms. Since these statutes are an important factor in the present or potential power of states to control environmental noise, it is essential to consider them in a state-by-state manner.

The states herein discussed have laws which fall into three categories. They are either general environmental laws which specifically include noise as an environmental problem, laws dealing only with noise, or environmental laws which make no mention of noise but which may be used by the states to combat their noise problems.

California

California has been in the forefront of the states in the control of pollution. In 1970 the State legislature passed the Environmental Quality Act.[158] Chapter 1433, section 21001 states that the legislature finds and declares it the policy of the State to, among other things, take all action necessary to provide the people of California freedom from excessive noise and to require governmental agencies to develop standards and procedures necessary to protect environmental quality. Other parts of the chapter establish an environmental impact statement program similar to the Federal 102 statement program under NEPA. The Office of Planning and Research is to coordinate the development of objectives, criteria and procedures to assure the orderly preparation and evaluation of environmental impact reports.

Chapter 1534 of the California Session Laws[159] establishes the Office of Planning and Research and states its duties and powers. This agency has primary responsibility for assuring orderly operational processes for environmental policy development and implementation within the State government. The agency is 1) to assist in the creation and assessment of goals and policies concerning factors which influence the State's environment, 2) to assist agencies in plans to guide functions relating to protection and enhancement of the State's environment and 3) to respond to emerging environmental problems.

In a separate act,[160] the legislature required the Resources Agency to develop a plan for optimum location of power plants over the next 20 years with the provision that site and fuel choices should be made with environmental considerations in mind, consistent with reasonable economy and efficiency of operation.

In summary, California's general laws (as opposed to specific laws dealing with vehicles and the like) governing noise and all other environmental hazards set no limits on noise. They do, however, establish the State policy to oppose excessive noise and require that goals, plans, and policies concerning noise be formulated by each agency dealing with matters which impinge on the environment, with assistance from the Office of Planning and Research.

They also assure that noise will be considered in establishing power plants.[161]

Colorado

In 1970 the legislature of the State of Colorado enacted a law establishing the post of Coordinator of Environmental Problems in the Office of the Governor. The duties of the Coordinator are 1) to study the problems of maintaining and enhancing the environment, including control of noise pollution, 2) to make reports and recommendations on changes in existing laws and, 3) to propose new measures. On the recommendation of the Coordinator and after his own investigation, the Governor may issue an emergency proclamation or may order a limitation or prohibition of activity endangering public health:

> provided, however, that no such order shall be effective for an initial period of longer than fifteen days and the effective period of such or order shall not be extended for more than fifteen days beyond the initial period.[162]

The general law, therefore, does not set any standards or establish any penalties for a polluter except in the case of the Governor's order. The law does set up an office with primary responsibility in the environmental area which could lead to further legislation and noise control.

Colorado recently adopted another noise law which went into effect July 1, 1971.[163] Unlike most State legislatures which delegate to state agencies the responsibility for setting noise limits, the Colorado legislature sets many noise limits in the Act itself. (See Section 1.2.2)

This new law sets noise limits on many activities measured at 25 feet from the line of the property on which the activity occurs. Any noise above the limits set forth below constitutes a public nuisance. Each of the zones is defined in the law.[164]

Zone	7:00 A.M. to next 7:00 P.M.	7:00 P.M. to next 7:00 A.M.
Residential	55 dBA	50 dBA
Commercial	60 dBA	55 dBA
Light Industrial	70 dBA	65 dBA
Industrial	80 dBA	75 dBA

Noise which is objectionable due to its intermittance, beat frequency or shrillness is also prohibited; these sounds shall be considered public nuisances when such noises are at a sound level of 5 dBA less than those listed above. In the hours 7:00 A.M. to 7:00 P.M. the noise levels permitted above may be increased by 10 dBA for a period not to exceed 15 minutes in any hours. Construction sites and railroad rights-of-way are considered industrial zones and the operation of trains is subject to the maximum levels for industrial zones. Aircraft and "other activities which are subject to Federal law with respect to noise control"[165] are exempted from the Act, as well as automobile race tracks during authorized races.

When there is reason to believe a nuisance exists, any resident of the State may maintain an action in equity to abate the nuisance and enjoin any individual responsible from maintaining or permitting it. Any violation of the injunction is punishable as a contempt of court by a fine of between $100 and $2,000 with each day of violation as a separate offense. The court is instructed, however, to give due consideration to the practical difficulties involved in complying with the court order and the court may stay the effect of the order for such time as may be necessary for the defendent to come within the legal limits.

The state does not preempt the field but allows any municipality to set stricter standards.[166]

Thus, by using a method which is usually exercised only by local government -- a zoning approach -- Colorado has set specific limits on the noise which any individual, group or business can produce within any property. This law is unique on the State level in its wide applicability.

Florida

In May, 1971, the Governor of Florida approved a law dealing entirely with noise pollution. The statute defined pollution as contaminants or noise in quantities which are or may be potentially harmful to human health or welfare, animal or plant life, or property or which unreasonably interfere with enjoyment of life and property including outdoor recreation. The law gave to the Department of Air and Water Pollution Control the power and duty to control and prohibit pollution in accordance with the law and with the rules and regulations promulgated by it. The Department is to establish standards for the abatement of excessive and unnecessary noise and, in cooperation with the Florida Department of Transportation, establish maximum decibel limits of sound permissible for motor vehicles.[167] The Department is now in the process of preparing for hearings concerning these standards and expects to promulgate them in the autumn of 1971.

Hawaii

In 1970 Hawaii adopted a far-reaching noise law. The statute requires the State Department of Health to adopt such rules and regulations, including "standards of excessive noise relating to the various sources thereof,"[168] for different areas of the state, as are necessary to prohibit or control excessive noise. The Department was also given the authority to establish a county advisory noise control committee in any county in which it deemed such a committee to be advisable. The committees are to study noise problems in each county and advise the Department on them.

The legislation provides for enforcement by declaring that all county and state officers and employees are to enforce the rules. Various penalties are also provided. The Department may institute a civil action for injunctive relief to prevent violation of the law or any rule or regulation it has promulgated. Violators of this law or any of the Department's rules are guilty of a misdemeanor, and may be fined not more than $500, or imprisoned for not more than six months, or both. The State has preempted the field by disallowing any county laws relating to noise control.[169]

At the present time hearings are being held prior to the promulgation of any rules. One advisory committee, for the island of Oahu, has been created and appears to be functioning successfully.[170]

Hawaii also has legislation which declares nuisance to be an offense. "Nuisance" is defined in part as "making loud and troublesome noise by night."[171] This legislation does not provide for any enforcement or penalties, however.

Illinois

In 1970, the Illinois legislature enacted the Environmental Protection Act.[172] This law specifically mentioned noise as an environmental pollutant and declared that the State must minimize the environmental impact of its own activities and assist local governments in protecting the environment. The law established the State Environmental Protection Agency in the Executive branch. The duties of the EPA include collecting and disseminating information, appearing before the Pollution Control Board in any hearing to deny a permit or to determine the validity of the effect of a rule, administering the permit and certification systems, making recommendations concerning the adoption of regulations, and administering any grants or loans for purposes of noise abatement. The EPA was given authority, in accordance with constitutional limitations, to enter at all reasonable times upon public or private property for the purpose of inspection and investigation to ascertain possible violations and to prepare and present enforcement cases before the Pollution Control Board.

The same legislation created the Pollution Control Board whose duty is to define and implement environmental control standards. The Board may also adopt rules and regulations. The Environmental Protection Act also created the Illinois Institute of Environmental Quality which is to investigate practical problems and to implement studies relating to technology and administration of environmental projects. The Institute is also to give guidance to the Agency and the Board on the setting of standards.

Title VI, Section 24, of the Act specifies that:

> (n)o person shall emit beyond the boundaries of his property any noise that unreasonably interferes with the enjoyment of life or with any lawful business or activity, so as to violate any regulation or standard adopted by the Board under this Act.

The Board may adopt regulations prescribing limits on noise emissions beyond boundaries of the property of any person, requirements and standards for equipment, and procedures for monitoring noise. In making its regulations, the Board has to consider the technological feasibility and the economic reasonableness of measuring and reducing the particular type of pollution. Any person may make a written proposal for a change in a regulation. If a proposal is not plainly devoid of merit, is accompanied by a petition signed by 200 or more people, has an adequate statement of reasons, and does not deal with a subject on which there has been a hearing within the last six months, the Board must schedule a public hearing on the proposal. If any proposal is made by the EPA or the Institute, the Board must schedule a hearing. It may have a hearing upon any proposal without the above conditions. The Act specifies the hearing procedures.

The agency is empowered to investigate possible violations of standards and may bring violators before the Board. Also, any person may file a complaint and the Board will schedule a hearing unless it determines that the complaint is duplicitous or frivolous. In the hearing, the EPA or the complainant has the burden of proving that the respondent has violated any provisions of the act or any of the rules and regulations set up by the Board. It is then the burden of the respondent to prove that compliance would impose arbitrary and unreasonable hardship. The Board may order violators to cease and desist and/or may impose money penalties. It may also revoke a permit. The Board is to set up standards for emergency conditions, and if these conditions exist the EPA may seal any vessel, aircraft, or other equipment in violation of regulations. It is a misdemeanor to break a seal or to operate any sealed equipment until the seal is removed. The owner or operator of the sealed equipment is entitled to a hearing to determine if the seal should be removed.

The Pollution Control Board may grant variances beyond the limitations it has set. The procedure for this is described in the Act. Any party aggrieved by a decision of the Board may appeal the case to the Appellate Court of that district.

The State legislature also made provision for the activities of State agencies. Each agency is required to report annually to the EPA on the environmental problems created by its operations. Each agency must also submit to the EPA plans and specifications, for any proposed installation or facility which may cause a violation of the Act.

The Environmental Protection Act also includes penalties for violations. A violator may be fined not more than $10,000 plus $1,000 for each day during which the violation continues.

At the present time, the Environmental Protection Agency is formulating a set of rules and regulations to be presented to the Pollution Control Board in the late summer of 1971. The Board will then hold hearings on these standards and either adopt or modify them. In any case it will be some time before any rules or regulations will be promulgated. The State rules may well be patterned after the noise ordinances of the city of Chicago, since many of the same people are working on their formulation.

New York

In 1970 New York enacted the Environmental Conservation Law.[173] The statute created the State Department of Environmental Conservation. The Commissioner of the Department was given the power to provide for the prevention and abatement of all water, land and air pollution including but not limited to that caused by noise. The Commissioner is also, with the approval of the Environmental Board and after public hearing, to adopt, amend or repeal environmental standards, criteria and rules and regulations having the force and effect of standards to carry out the State's environmental policy. The Commissioner is further empowered to enter and inspect any property for the purposes of investigating actual or suspected sources of pollution or for ascertaining compliance or noncompliance with any law, rule or regulation.[174] If the Commissioner decides that a condition or activity results or is likely to result in irreversible environmental damage he may order cessation of that activity until a hearing can be called concerning the matter.

The act also created the State Environmental Board made up largely of department heads whose function is primarily to coordinate State activities and act as a forum for the exchange of views toward the achievement of the environmental policy. The legislation further created the Council of Environmental Advisors whose duties include developing guidelines for weighing the interrelationship between environmental quality and economic development and acting as an advisory body.[175]

North Dakota

In March, 1971, the North Dakota legislature passed a bill authorizing the State Health Council to establish reasonable standards, rules and regulations to prevent and minimize hazards to health and safety caused by excessive noise. The rules are to be applicable to farm machinery, tools, construction equipment, motor-powered vehicles, musical instruments and groups, and other devices and activities producing hazardous noise levels. Hearings on the rules are required. An appeal from any standard may be taken to the courts. Violators of the standards are guilty of a misdemeanor punishable by a fine of not more than $1000. The Health Council may also obtain an injunction to stop repeated violations. Actual flying operations of aircraft are exempted from the law.[176]

North Dakota thus has one of the most all-encompassing laws of this kind in the nation. The State Legislature began the process which will result in standards on a wide variety of noise polluting devices.

Pennsylvania

Pennsylvania law empowers the Department of Environmental Resources to abate and control nuisances. Persons authorized by the Department, who have the power and authority of constables, may enter and inspect any vehicles, apartments, buildings and places in order to examine nuisances. Officials may order any nuisances detrimental to health to be abated and, if the owner does not, may enter upon the premises to abate them. The expenses of such abatement may be recovered by the Department in an action against the owner.

Pennsylvania law, then, does provide a method for the abatement of noise although noise is not mentioned in the environmental law. Whether or not noise is determined to be a nuisance against which the Department can then take action, depends upon the interpretation given to "nuisance" in Pennsylvania.[177]

1.2.2 Transportation

A. Engine Noises

Aircraft

California

On September 4, 1969, the Governor of California approved the California law designed to decrease noise from aircraft around the State's airports. Under the law the Department of Aeronautics was given the authority to set noise standards for aircraft and aircraft engines.[178] (See discussion 2.4.1.) The regulations which the department produced will go into effect in December, 1971.[179]

These regulations require first that every county government determine whether or not the airports within the county have a noise problem. Various methods for determining this are given. If there is a problem, the airport operator has one year in which to establish monitoring stations in the communities around the airport. One year of monitoring the aircraft noise at the expense of the airport operator follows.

The next step is the establishment of the Noise Impact Boundary around the airport. This boundary is a locus of points in the surrounding area each of which has the same "criterion" noise impact level. The noise level is measured for these purposes in terms of Community Noise Equivalent Level (CNEL); this is a complex unit, expressed in decibels (dB), which represents the average noise level for a 24 hour period with adjustments to account for the lower tolerance of people for noise during evening and night hours.

The criterion CNEL is 65 dB for new airports, including those converted from military use. For existing airports, the criterion CNEL is initially 80 dB for large airports (having four-engine turbojet or turbofan air carrier aircraft operations and 25,000 or more air carrier operations annually) and 70 dB for smaller airports. The large-airport criterion CNEL decreases to 75 dB on January 1, 1976, to 70 dB on January 1, 1981, and finally to 65 dB on January 1, 1986, at which time the small-airport criterion also drops from 70 to 65 dB. An anticipated result of this phased lowering of permissible noise levels is that by 1986 the 80 dB CNEL line, which presently lies in the communities around the large airports, will have shrunk so as to be entirely within the boundaries of the airport property. It is worth noting that even this does not necessarily correspond fully to the stated intent of the legislation, which is to reduce to zero the residential area affected by noise (in CNEL) greater than 70 dB, but it certainly represents a great decrease in noise conditions nonetheless.

The State does not prescribe how the lower noise levels are to be attained, It does suggest methods to the airport manager such as encouraging the use of quieter aircraft, encouraging flight paths designed to minimize noise to the community, decreasing the number of operations and planning runway utilization schedules to account for residential areas.

Another provision of the regulations requires that the airport operator set Single Event Noise Exposure Limits (SENEL) which may be no higher than corresponding limits prescribed in the regulations.[180] The SENEL, which is different for different types of aircraft, is the permissible limit of noise allowed a single takeoff or landing.

Enforcement of the SENEL provision is the responsibility of county officials with whom the airport manager is required to cooperate. In the case of a violation of the SENEL, the airport manager must inform county officials who then will determine appropriate enforcement measures. The penalty for a violation is a fine of $1000.[181] The State does have certain sanctions which can be used to enforce the entire law. An injunction may be obtained restricting airport operations. By an administrative proceeding the airport could have its license revoked, suspended or reinstated subject to certain conditions.

The regulations provide for variances to be granted by the Department of Aeronautics. An airport operator may request variances from any of the requirements of the regulations with the exception of the provisions concerning the CNEL limits and the establishment of the Noise Impact Boundary. The requested variances may not extend for more than one year. The airport proprietor must state the reasons for the variance, the future date at which he expects to achieve compliance with the regulation and an incremental schedule of noise impact reductions for the intervening time.

The Department may grant variances if the public interest "would be satisfied by such a variance."[182] The Department is to consider the economic and technological feasibility of the airport operator's compliance with the regulations, the potential community noise impact produced by the variance, the value to the public of the services for which the variance is sought and the adequacy of the airport operator's measures. The regulations further provide that, "on its own motion, or upon the request of an affected or interested person, the department shall hold public hearings in connection with the approval of an application for a variance."[183] The Department, in granting a variance, may impose reasonable conditions on the airport operator.[184]

California officials are confident that this law will withstand a test in court. One reason for this, they believe, is that it controls the airports through the use of the licensing power which the state already exercises. It forces the regulation of aircraft noise based on the proprietary authority of the airport operator.[185] (See discussions in 2.4.1, page 2-55 and 3.2, page 3-17.)

Minnesota

Minnesota has taken a different approach to regulating the effects of aircraft noise. The State has enacted a statute which allows State authorities exclusively to provide the zoning regulations for land within five miles of any newly constructed airport owned by the State.[186]

Automobile and Truck

State governments have long been aware of the problem of motor vehicle engine noise. They have adopted several different approaches for dealing with this source. Ten states have enacted laws which prohibit specified levels of total noise from the motor vehicle. Many more states have enacted laws requiring the limitation of noise from the vehicle exhaust by the use of a muffler.

Connecticut, Kentucky, Massachusetts, Missouri, Oregon

Five states have enacted statutes[187] which prohibit excessive noise from motor vehicles and apply a subjective standard. The standards include "unnecessary" (Massachusetts and Connecticut), "excessive and unnecessary" (Missouri), "minimum" (Kentucky), and no greater noise than is "reasonably necessary" (Oregon). None of these laws specify any enforcement procedures or set any penalty for violation. Kentucky, Missouri and Oregon also have muffler requirements.[188] Connecticut recently enacted a law which will go into effect on January 1, 1973. It empowers the Commissioner of Motor Vehicles, with the advice of the Commissioner of Health, to "establish by regulation the maximum decibel levels, which shall not exceed 90 dBA, for noise emitted by vehicles and the procedure for checking such decibel levels."[189] A penalty of a fine of between $25.00 and $100 is provided.[190]

New York

New York's motor vehicle law prohibits the operation of any motor vehicle which creates excessive or unusual noise. A sound level of 88 dBA at 50 feet is specified as being excessive. This statute governs all motor vehicles except authorized emergency vehicles or vehicles moving under a special permit. The statute provides procedures for measuring the noise in a suspected violation but does not specify who shall enforce the law. No penalty is specified.[191] In addition, New York law requires mufflers.[192]

Idaho

Idaho recently adopted a new law which requires that all motor vehicles be equipped with a muffler in good working order which will prevent excessive and unnecessary noise. The law specifies that noise in excess of 92 dBA measured at 20 feet is prima facie evidence of a violation.[193]

California

California has one of the most detailed and sophisticated laws governing motor vehicle noise. The statute[194] divides motor vehicles into three different categories, specifies maximum noise levels for the operation of each type of vehicle and specifies maximum noise levels on motor vehicles to be sold. The noise levels for operation are given in the following table.[195] All measurements are made at 50 feet from the center line of travel.

	Speed limit of 35 mph or less	Speed limit of more than 35 mph
(1) Any motor vehicle with a manufacturer's gross vehicle weight rating of 6,000 pounds or more and any combination of vehicles towed by such motor vehicle:		
(A) Before January 1, 1973	88 dBA	90 dBA
(B) On or after January 1, 1973	86 dBA	90 dBA

. . . .

	Speed limit of 35 mph or less	Speed limit of more than 35 mph
(3) Any other motor vehicle [except a motorcycle] and any combination of vehicles towed by such motor vehicle	76 dBA	82 dBA

A limit on noise from new vehicles is also specified. No vehicle which violates the following limits may be sold:[196]

Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured on or after January 1, 1968 and before January 1, 1973	88 dBA
Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured on or after January 1, 1973	86 dBA
Any other motor vehicle [except a motorcycle] manufactured on or after January 1, 1968 and before January 1, 1973	86 dBA
Any other motor vehicle [except a motorcycle] manufactured after January 1, 1973	84 dBA

The statute leaves measurement procedures to the Department of the California Highway Patrol. A private cause of action is permitted against a manufacturer if it can be proven that he violated the specifications relating to manufacturers in the original sale.[197] No other penalty or remedy for a violation is specified. Although the Highway Patrol is to establish test procedures, it is not specified as the enforcement agent.

Colorado

Colorado's recent noise abatement act[198] includes standards for motor vehicle noise patterned after the California limits. The provision governing noise limits for new vehicle sales is identical to the California limits as far as automobiles are concerned. It deviates from the standard for trucks with a gross vehicle weight rating of 6,000 pounds or more only in that it does not apply to vehicles in this class manufactured before January 1, 1971. The law exempts vehicles designed exclusively for racing purposes. A violation of this provision invokes a penalty of between $50-$300.

Colorado takes the unusual step of specifying minimum standards for vehicle operational noise limits which local communities may, at their option, enact into law. These standards are identical to the California limits in the case of trucks. The limits on all other motor vehicles are identical to the California standards for motorcycles; namely, 82 dBA at 50 feet in a zone with a speed limit of 35 mph or less and 86 dBA in a zone with a speed limit over 35 mph.

Colorado does not preempt the field but specifies that stricter standards may be set in local laws.[199]

Minnesota

As in the case of Colorado, Minnesota has recently adopted a vehicle noise law similar to that of California. The noise limits on the operation of automobiles and trucks are exactly those of the California law. The provisions governing noise limits of new motor vehicles differ from California's only in that they do not regulate automobiles manufactured before January 1, 1972. After this date, the limit is identical to that set by California for cars manufactured in the same time period. The Minnesota law does not provide for enforcement or set any penalties.[200]

One of the single most widely used means for regulating noise is the requirement of a muffler on all automobiles in a state. A muffler is defined as:

> (A) device consisting of a series of chambers or baffle plates or other mechanical design for the purpose of receiving exhaust gas from an internal combustion engine or turbine wheels for the purpose of receiving exhaust gas from a diesel engine, both of which are effective in reducing noise.[201]

Forty-three states specifically require a muffler in good working order at all times. These states also specify that muffler cutouts, bypasses and other devices which prevent the engine exhaust from traveling through the muffler are prohibited. Only five states provide specific penalties for violations of this law. In Alabama a violation is deemed a misdemeanor.[202] In Pennsylvania violators of the muffler statute are subject to a fine not exceeding $25 or imprisonment for a term not exceeding 15 days or both.[203] In Texas a violation may produce a fine as high as $100.[204] Wisconsin prohibits the operation of automobiles on the State fairgrounds without a muffler from 10:00 P.M. - 8:00 A.M. except during State fairs. A violation of any of Wisconsin's statutes concerning State fairgrounds subjects the guilty party to a fine of as much as $200 or imprisonment for as long as six months.[205] Wisconsin also has a law governing the use of mufflers during normal operation of an automobile which establishes no penalty.[206]

Nine states (Colorado, Illinois, Louisiana, Maine, New Hampshire, New York, Oklahoma, Pennsylvania, and Wisconsin) further provide that no one may alter or modify a muffler so that the automobile emits more noise than it did with the original muffler.[207] Virginia specifies that an automobile which allows more noise than is standard is illegal.[208] Maryland prohibits the use of cutouts in tunnels.[209] Georgia law prohibits the sale of a muffler which is not properly equipped to reduce noise.[210]

Only four states do not have statutes requiring an automobile noise limit. They are Hawaii, Alaska, Nevada and Vermont. Vermont law[211] does not require a muffler but only prohibits use of cutouts in thickly settled areas. This law provides a fine of $25. California, Connecticut and Massachusetts, although lacking a muffler statute, rely on their laws governing general vehicular noise.

Motorcycles

Eight states specifically provide for motorcycles in their motor vehicle and general codes. Nevada law requires mufflers on all power cycles operated on the public streets.[212] Michigan and New York require mufflers and take the further step of prohibiting muffler cutouts, bypasses and similar devices.[213] Hawaii provides laws requiring mufflers on all motor scooters and prohibiting alterations which increase the noise level.[214] The Virgin Islands also requires mufflers on motorcycles and prohibits cutouts as well as unnecessary racing of the engine and unreasonable noise from the entire cycle.[215] Pennsylvania law demands mufflers from which the baffles have not been removed. It alone provides a penalty ($25 fine or 15 days imprisonment) for a violation.[216] None of these laws specifies enforcement procedures.

As in other areas, California has one of the most sophisticated laws in this field.[217] The noise limit on all motorcycles other than motor-driven cycles[218] is 82 dBA in zones with speed limits of 35 mph or below and 86 dBA in zones with speed limits over 35 mph, all measurements taken at 50 feet. No one may sell or offer to sell any motorcycle manufactured before

January 1, 1970, which emits noise above 92 dBA at 50 feet. No one may sell or offer to sell any motorcycle, other than a motor-driven cycle, manufactured after January 1, 1970, but before January 1, 1973, which emits noise louder than 88 dBA or one manufactured after January 1, 1973, which emits noise at a level above 86 dBA. Although the distance of measurement is specified, other test procedures are left to the Department of the California Highway Patrol. No penalty or specific enforcement procedures are established in the law.[219]

The provisions for motorcycles in Colorado's recent law are similar to those of California. One difference is that Colorado includes motor-driven cycles in its provisions on motorcycles. Although motorcycles are not specifically named in the standards Colorado establishes for optional enactment by local communities, the operational noise limit for all motor vehicles, except for those with a gross vehicle weight of 6,000 pounds or more, are identical to the California motorcycle noise limits.[220] Colorado's prohibitions on noise from new motorcycles sold or offered for sale are also identical to California's limits with the exception that California sets a limit for those manufactured before January 1, 1970, and those manufactured between January 1, 1970 and January 1, 1973, whereas Colorado restricts those which were manufactured on or after January 1, 1973 (88 dBA measured at 50 feet, the same as the California limits for the same time period).[221] Colorado provides a penalty of between $50 and $300 for a violation of the provision on vehicle sales. Colorado permits local governments to set stricter standards.[222]

Minnesota's provisions governing motorcycles are very similar to California law. The noise limits for operation of the motorcycle are identical to California's levels. The only difference between the two laws is that motorcycles manufactured between January 1, 1970 and January 1, 1973, must not exceed a noise limit of 88 dBA at 50 feet in California whereas Minnesota gives manufacturers two more years to reach the same noise limit, prohibiting noise of over 88 dBA from motorcycles manufactured between January 1, 1972 and January 1, 1973.[223]

Boats

Six states have recognized the need for the control of noise from waterborn vehicles as well as those which travel on land. Illinois law provides that gas, gasoline or naphtha propelled boats must be adequately muffled so as not to create excessive or unusual noise.[224] Kansas also requires mufflers on a motorboat's internal combustion engine.[225] Nebraska and New York require mufflers and prohibit cutouts or bypasses except on boats being used in regattas.[226] In New York, a violation of this law is a misdemeanor. Pennsylvania requires mufflers on all motorboats and all other boats must have either an underwater exhaust or a muffler with at least two baffle plates. The law provides for a penalty of a fine of $10 to $50 or imprisonment of not more than ten days.[227] None of the laws dealing with noise from boats establishes any specific enforcement agency.

Wisconsin has adopted a different approach and specifically delegates to municipal boards the power to regulate or prohibit the use, traffic, and noise of motorboats.[228]

Snowmobiles

The rapid rise in the popularity of snowmobiles in recent years has created an increasingly significant noise source. Six states have enacted noise statutes with regard to this new source. Wisconsin's law states that no person shall operate a snowmobile in such a way that the exhaust makes an excessive or unusual noise. No person may operate a snowmobile without a functioning muffler. The penalty for a violation is $10 to $20 for the first offense and $25 to $50 for the second and subsequent offenses. No enforcement procedure or agents are specified.[229]

Maine's new snowmobile law will go into effect in October of 1971. It requires that every snowmobile be equipped with an adequate muffler. A penalty of a fine of between $10 and $100 is provided for each offense.[230]

Massachusetts also prohibits unusual and excessive noise from snowmobiles but sets a standard of 73 dBA measured at 50 feet as excessive. The measurement procedures are set out in this law as well. Massachusetts further prohibits the sale, after January 1, 1971, of any snowmobile unless it is certified by the manufacturer as being able to conform to the noise level limit of 73 dBA. Violators of the law are subject to a fine of between $20 and $200. Again no enforcement procedures are described.[231]

New York recently adopted a law which requires an adequate muffler on all snowmobiles. No snowmobile manufactured after June 1, 1972 may be sold unless it is equipped with a muffler which limits engine noise to not more than 82 dBA at 50 feet. The limit changes to 73 dBA for those snowmobiles manufactured after June 1,

1974. The law also states that the Commissioner of Conservation may adopt rules and regulations with respect to the inspection of snowmobiles and the testing of snowmobile mufflers.[232]

A new Montana snowmobile law became effective July 1, 1971. The statute authorizes the State Fish and Game Commission to establish regulations governing the noise from new snowmobiles, provided that after June 30, 1972, no new snowmobile may be sold in the state unless certified by the manufacturer that it will not exceed a noise limit of 85 dBA measured at 15 feet. Snowmobiles used in competition are exempted. Enforcement is to be the responsibility of the State Department of Fish and Game as well as State and local police. A violation of the law is a misdemeanor.[233]

Colorado has the most sophisticated law in the field of noise regulation of recreational vehicles. No such vehicle manufactured on or after January 1, 1971 may be sold if it produces more noise than 86 dBA at 50 feet. For those vehicles of this class manufactured after January 1, 1973, the noise limit is 84 dBA at 50 feet. Colorado sets minimum limits on the operation of these vehicles which are left to be enacted into law by local legislation. These levels are 82 dBA measured at 50 feet for a speed limit of 35 mph or less and 86 dBA at 50 feet for a speed limit above 35 mph. Lower governmental units are permitted to set stricter standards.[234]

B. Vehicle Operation Procedures

Horns

Many state legislatures, concluding that it is not sufficient to control only noises from vehicle engines, have adopted prohibitions and requirements concerning the operation of the vehicle.

The most common type of statute in this category is the one governing horns on motor vehicles. Fifteen states have adopted horn statutes. They are Alabama, Arizona, Arkansas, Colorado, Georgia, Kansas, Maine, Michigan, Maryland, Missouri, Oregon, South Dakota, Tennessee, Texas and Wyoming.[235] Nearly all of these statutes contain the same language. They require horns but prohibit any that emit unusually loud or harsh sounds. Horns are to be used only as a warning and only when reasonably necessary. Sirens and whistles are not permitted except on emergency or other authorized vehicles. None of the statutes specifies enforcement agents or procedures and none uses an objective standard such as a decibel limit. The Texas law is unique in allowing bells, gongs or horns as warning devices.[236] Only two states provide penalties for violation of the law. Alabama deems a violation to be a misdemeanor.[237] Texas provides a fine of not more than $100 for a violation.[238] In addition to the 15 horn statutes, those states which have general vehicular noise regulations may use them to control horns, sirens, and other signalling devices.

The Minnesota state legislature has passed a law that forbids aircraft to engage in advertising through the playing of music or oral announcements or the making of any noise with any siren, horn, whistle or other audible device. Those noises necessary for the normal operation of the aircraft are exempted. Another exception exists for any aircraft used under authority of the State to give warnings. No enforcement procedures or penalties are stated.[239]

Bells

Maryland's legislature has enacted a statute governing the use of bells on ice cream product trucks. These bells may only be operated manually and are prohibited between 10:00 P.M. and 8:00 A.M. Apart from this single exception bells are dealt with in the same laws governing horns which are described above.[240]

Carrying Metals

New Jersey has adopted a statute governing noise related to metals loaded on vehicles. The law provides that no one may load a vehicle with iron or other material that may strike together unless it is properly deadened so as to cause no unnecessary noise. There is no objective standard, enforcement procedure or penalty specified.[241] Those states which have laws governing general vehicular noise may control the carrying of materials as part of their authority to control all vehicle noise.

1.2.3 Commercial

A number of states have recognized the need to regulate noise from commercial enterprises or individuals acting in a business capacity. While those states with general noise statutes can apply them to commercial activity, some states prefer to provide specifically for commercial noise control. Mississippi, Nevada and New Jersey each delegate the power to control noise in this category to municipalities. In Mississippi, municipalities may regulate or prohibit any mill, laundry or manufacturing plant the unnecessary noise of which may do damage to, or interfere with use or occupation of, public or private property.[242] In Nevada a city council has the power to regulate the making of noises for the purposes of business, including the blowing of horns, the ringing of bells and the shouting of auctioneers.[243] In New Jersey, a municipal board may regulate and prohibit advertising, and other noises in streets and public places. New Jersey alone of the three states provides a penalty which is a fine not exceeding $200.[244] None of these statutes state what enforcement procedures are to be followed.

Delaware and Texas have regulated the noise emanating from establishments which sell alcoholic beverages. In Delaware an application for a liquor license may be denied or a license revoked if the applicant or licensee has maintained a noisy establishment.[245] In Texas any permit may be suspended or cancelled for a period not exceeding 60 days if the permitee maintains a noisy place of business.[246]

1.2.4 Construction

Several states have recognized the need for shielding individuals from noise under certain circumstances and have provided laws which attempt to serve this purpose. This kind of legislation, however, is not so much noise control as control of the effects of noise on individuals. (For the single exception, see the discussion on Colorado's general law, p. 1-63.) New York has adopted a law empowering its Housing Department to adopt and promulgate standards of sound retardation for the walls, partitions and floors and ceilings between apartments and between apartments and public places based on direct measurement of sound loss in decibels for various frequencies. Every multiple dwelling erected after January 1, 1970, must comply with these standards.[247]

In Hawaii the Department of Education is obligated to implement noise control of existing and new school facilities in areas affected by aircraft, traffic and other noise. Acoustic noise control is to be given equal weight with all other factors in the criteria used by the Department in setting priorities for school construction and renovation.[248]

In another law designed to shield individuals from the effects of noise, Iowa has adopted a statute specifying that migrant camps cannot be located near conditions likely to create offensive noise. Certification is necessary to open a migrant camp and this certification can be withheld or revoked for any violation of the law. Violators are also guilty of a misdemeanor and will be fined not less than $50 nor more than $100 for each offense.[249]

In 1970 California adopted a law limiting noise from new freeways being constructed near existing schools. The act specified that no freeway may be constructed so that during its first two years of operation the noise level produced by its traffic will measure in excess of 50 dBA within any public elementary or secondary school classroom, library or multipurpose room already in existence and used for this purpose. To conform to this standard the Deparment of Public Works may undertake a noise abatement program in the school to consist of installing acoustical materials, eliminating windows or in some way insulating the facility from the freeway noise. If it is necessary to convert a room in a school to a use more compatible with the noise level, the Department must pay for this conversion. If the sound level in a classroom, library or multipurpose room exceeds 50 dBA before the freeway is built, the Department must take steps necessary to insure that the level will not be increased by the added freeway noise.[250]

As is the case with other state regulation in this area, the purpose of the California law is not to lower the noise from the source, the freeway, but to shield individuals from the effects of that noise.

1.2.5 Occupational

Information concerning State occupational noise regulation is difficult to obtain. In virtually every case regulations in this area are the result of administrative agencies setting limits pursuant to broad occupational safety and health legislation.

Of the 23 states which have adopted regulations in this area made available to this study, the great majority have established standards identical to the Walsh-Healey levels discussed in 1.1.3.[251] California, Oregon and Utah require that if a worker is subjected to the following noise levels for more than five hours he must wear ear protection devices:[252]

Frequency Band (cycles per second)	Octave Band Sound Pressure Level (Decibels)
20-75	110
75-150	102
150-300	97
300-600	95
600-1,200	95
1,200-2,400	95
2,400-4,800	95
4,800-10,000	95

Four other states have adopted regulations setting objective standards varying from 85 dB to 100 dB.[253] Two states, Florida and New Mexico have promulgated subjective standards.[254] Florida recommends that continuous noise levels be kept as low as possible in accordance with good engineering practices. This may be accomplished by 1) reduction of noise at the source, 2) isolation of the noisy operation, 3) reduction of noise by sound insulation and 4) the use of personal protective devices against noise. In New Mexico, all feasible methods of preventing noise levels capable of causing ear damage are to be used.

Many of the regulations apply to all places of employment, although domestic agricultural and very small places of business are often exempt. Generally, penalties for violations of the limits are not specified.

Virtually every state has adopted workmen's compensation statutes which provide compensation for occupational injuries. Included in these laws are sections related to hearing loss due to noise from industrial machines and other sources. Although these regulations indirectly encourage the lowering of factory noise levels, their primary purpose is to provide for the effects of noise instead of attempting to deal with the control of noise. For this reason a thorough study of these laws is not within the scope of this report.

1.2.6 Miscellaneous

A. Disturbers of the Peace

One of the most extensively regulated noise sources is man himself in his role of disturber of the peace and quiet of his neighborhood or community. Virtually every state has legislation dealing with disturbances of the peace and disorderly conduct. However, only 27 of the states specifically name noise as an element to be considered as disturbing the peace. Only these laws are discussed below.

Three distinct approaches are taken among the 27 states in the regulation of noisy, disturbing individuals. The first approach is to enact legislation dealing with the source on the State level. These laws specify standards and usually establish penalties for violations. The states which have adopted the first approach are Alaska, California, Kansas, Louisiana, Maine, Massachusetts, Missouri, Ohio, Rhode Island, Tennessee, Vermont, Wisconsin and Wyoming.[255] The Virgin Islands has also adopted this approach.[256] The second approach is to delegate to the municipalities the power to regulate disturbers of the peace. States following this approach set no standards or penalties. The states which have adopted the second approach are Connecticut, Illinois, Iowa, Kentucky, Michigan, Minnesota, and Pennsylvania.[257] The third approach is a combination of the first two, enacting regulations governing disturbers of the peace and also empowering municipalities to do likewise. States adopting the third approach do not establish standards or penalties with regard to municipally regulated disturbers of the peace, with the exception of Washington which limits the maximum penalty of its first class cities to $500 fine or six months imprisonment or both.[258] Those states in the third category are Mississippi, Nebraska, New York, Oklahoma, Texas, Utah, and Washington.[259]

The states using the first and third approaches and enacting specific laws are universal in their failure to specify any criteria. The standards used are never exact but consist of such subjective terms as "loud or unusual noise" (California), "unreasonably loud, disturbing, and unnecessary noise or noises of such a character, intensity and duration as to disturb the peace and quiet"

(Ohio), "violent, profane, indecent, offensive or boisterous conduct or language" (Tennessee), and "unnecessary and offensive noise" (Vermont).

The statutes are aimed at all noisy and boisterous individuals. Some states specify certain places and either limit the offense to disturbances in these places or provide different penalties for different places. The place most often protected is the church or place of worship. Others are the school and the library.

Enforcement procedures are almost never specified. Rhode Island specifically empowers its railroad and steamboat police to arrest disorderly persons on trains and boats.[260] No other state law specifically mentions by whom it will be enforced.

Penalties for disturbing the peace vary greatly. Several states (Massachusetts, Missouri, Nebraska, New York, Oklahoma, Washington) do not set any penalty in their legislation. Maine prescribes a fine of a maximum $20 for disturbing or interrupting a teacher or pupil in school.[261] The average maximum fine for disturbing the peace, however, is in the $100 to $300 range. The average maximum imprisonment specified is two to six months. The highest imprisonment penalty is that of a possible one year for disturbing a worship service in the Virgin Islands.[262] The fine of $500 specified as the maximum allowable in Tennessee, Texas, Louisiana and Mississippi ranks as the highest fine.[263]

B. Hunting Noise

Pennsylvania, by itself, has adopted a law to deal with a particular human source. It is unlawful for anyone to hunt wild turkeys by the use of recorded sounds. No penalty or enforcement procedures are specified.[264]

1.2.7 Trends in State Regulation

Any predictions concerning future State law in the area of noise control must be predicated on the assumption that the Federal government will not preempt the field of noise regulation. Such a move on the part of the Federal government would obviously disrupt the development of State laws in this area.

With this in mind, it is possible to make certain statements concerning the directions in which the states seem to be moving. More states are entering this area in earnest. The large number of states which passed noise laws during the first two quarters of 1971 demonstrates this.[265] States are setting up environmental departments with authority in the noise area or adding noise control as one of the environmental factors to which these departments should give attention.

The number of noise sources being covered by any one state is expanding. This is especially true in the area of recreational vehicles, particularly snowmobiles and motorcycles. Those sources which have traditionally been dealt with, particularly automobiles, are being dealt with in new ways. The increase in the number of laws setting forth overall vehicle noise limits in decibels is the prime example. Here, California has set the pace, some states following her lead.

This general trend does not seem to hold in the case of aircraft noise, however. The extreme complexity of this problem from both the technological and the legal points of view seems to discourage states from following California's lead in this area. The other states may well be waiting for a court determination on the California law before plunging into this field.

In general the laws on the State level are becoming more sophisticated. Instead of the traditional use of phrases such as "unreasonable" and "unnecessary" more states are setting decibel limits. They are also specifying more enforcement by particular agencies such as environmental departments, rather than leaving enforcement in the hands of the State and local police.[266] The laws also are tending to set progressively stricter standards over specified lengthy time periods. This indicates the desire on the part of the states to encourage a quieter environment consistent with technological practicability and economic feasibility. In short, the states are requiring manufacturers of noise polluting devices to develop new technology in order to comply with the stricter standards which are inevitable.

To a greater extent than ever before, states are directing their laws at the manufacturer of noise-producing vehicles and machinery. The limited ability of the individual operator to decrease noise from his device has caused the states to place the burden of lowering noise from many noise sources with the producer. It is probable that more laws will require that new products meet certain standards for noise control before they may be sold within the state.

In conclusion, if the Federal government does not preempt the field in this area it seems likely that states will continue to expand and develop their expertise in the area of noise control. Better standards and more meaningful enforcement procedures may well be developed with the result that some impact may be made in the area of noise control. The effectiveness of State controls depends on enforcement of the laws, however. Here, the states must develop new programs and increase the amount of funds directed toward the control of noise. Without this, the growing expertise in law-writing and standard-setting will be of little value in the fight against offensive noise.

1.2.8 Gaps in State Regulation

Although state control of noise sources is expanding, many gaps in state regulation are still apparent. Only one state, California, has taken significant steps to deal with the problem of aircraft noise. While this area is thought to be largely the province of the Federal government, there are still many steps available to states to lower the noise from aircraft or to deal with the problems inherent in the effects of that noise. Even though the greatest advances in state control have been in the area of transportation, no state other than Colorado has any regulations concerning noise from railroads.

The noise from industrial and commercial enterprises also is not well regulated in the State level, again with the exception of Colorado. Construction site noise, one of the most irritating and hazardous sources or unwanted sound in our society, is hardly dealt with in State law.

Perhaps the greatest gap is in the area of domestic noise. The cacaphony produced by vacuum cleaners, garbage disposals, food blenders, and other domestic sources has seemed of little concern to State legislatures which surely have authority to set standards in this area.

1.3 NOISE SOURCES REGULATED AT THE REGIONAL LEVEL

The only regional body in the United States which controls noise in any way is the Port of New York Authority, which was created as a result of a compact between the States of New Jersey and New York. As a bi-state agency it is exempt from municipal and State laws with the exception of bi-state amendment of its charter. Although the Port Authority has considerable control over many transportation facilities in and around the city of New York, it has established noise standards only for the operation of the airports within its jurisdiction. These include Kennedy International, La Guardia Airport, Newark Airport, and Teterboro Airport.

The Port Authority has set up regulations governing noise on take-offs from its airfields using an objective measurement system. Take-offs are permitted only if they are so planned at the airport that the noise level of 112 PNdB as measured on the ground in the communities surrounding the airports at specified points will not be exceeded.[267] At Kennedy Airport take-offs may be made from only three runways between 10:00 P.M. and 7:00 A.M.[268] Airplanes may only start and warm up their engines at places designated by the Airport Manager.[269] The only way in which the Port Authority can enforce these regulations against the airlines is to threaten the withholding of permission for planes to land.[270]

1.4 NOISE SOURCES REGULATED AT THE LOCAL LEVEL

1.4.1 General

Compiling the laws that exist on the local level presents a unique problem. Local laws are rarely published or made widely available to law libraries. In some small communities the local laws are not even codified and the problem of finding the law is a difficult one.

In order to accumulate a wide range of laws passed by local governments, 187 requests were sent out to local governments for copies of their laws concerning all aspects of noise control. The largest cities in the nation were chosen as well as the largest cities in each state. Smaller communities with particular noise problems were also contacted. The study received 84 responses, most of them from the larger cities of the United States with some from smaller communities. The following is a list of the cities which responded with copies of their laws on noise or in a few cases with information on their regulations:

Ann Arbor, Mich.
Aspen, Col.
Atlanta, Ga.
Bangor, Me.
Beverly Hills, Cal.
Billings, Mt.
Binghamton, N.Y.
Birmingham, Ala.
Bismarck, N.D.
Boston, Mass.
Boulder, Col.
Buffalo, N.Y.
Cheyenne, Wyo.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbia, S.C.
Dallas, Tex.
Decatur, Ill.
Denver, Col.
Des Moines, Iowa
Detroit, Mich.
Dillon, Col.
Durango, Col.
El Paso, Tex.
Evergreen, Col.
Flagstaff, Ariz.
Fort Lauderdale, Fla.
Grand Junction, Col.
Greensboro, N.C.
Hartford, Conn.
Helena, Mt.
Honolulu, Hawaii
Houston, Tex.
Indianapolis, Ind.
Jacksonville, Fla.

Juneau, Alaska
Kansas City, Kan.
Killeen, Tex.
Las Vegas, Nev.
Little Rock, Ark.
Los Angeles, Cal.
Madison, Wis.
Manchester, N.H.
Medford, Ore.
Memphis, Tenn.
Miami Beach, Fla.
Milwaukee, Wis.
Minneapolis, Minn.
Missoula, Mt.
Nashville, Tenn.
New Haven, Conn.
New Orleans, La.
New York, N.Y.
Norfolk, Va.
Ogden, Utah
Oklahoma City, Okla.
Omaha, Neb.
Park Ridge, Ill.
Philadelphia, Pa.
Phoenix, Ariz.
Pittsburgh, Pa.
Pocatello, Idaho
Portland, Ore.
Providence, R.I.
Richmond, Va.
Rochester, Minn.
Saint Louis, Mo.
Salt Lake City, Utah
San Clemente, Cal.
Santa Barbara, Cal.
San Francisco, Cal.
Scranton, Pa.
Scottsbluff, Neb.
Seattle, Wash.
Sioux Falls, S.D.
Stowe, Vt.
Toledo, Ohio
University Heights, Ohio
Washington, D.C.
White Plains, N.Y.
Wichita, Kan.
Wilmington, Del.

Of these 83 responding cities, 57, or approximately 69%, have either no laws governing noise pollution or some type of general law (meaning, for the purposes of this study, one which attempts to control all noise sources). The general laws include those with a subjective standard with relation to noise, those with an objective standard and those based on public nuisance or zoning laws.

Twelve cities responded either that they had no laws controlling noise and no noise program or that they had only a few laws and were unable to furnish them. Those which specifically denied the presence of any laws or programs (concerning noise) in their communities were Atlanta, Ga.,[271] Bangor, Me.,[272] Cheyenne, Wyo.,[273] Durango, Col.,[274] Evergreen, Col.,[275] Grand Junction, Col.,[276] Honolulu, Hawaii,[277] Omaha, Neb.,[278] Pittsburgh, Pa.,[279] and Stowe, Vt.[280] (With respect to Honolulu, it should be noted that the State of Hawaii has preempted the field in the area of noise control and has forbidden separate local legislation.) The Air Pollution Control Officer of Columbia, S.C., responded that that city has no noise laws except for some provision in the zoning ordinance which is never used.[281] The Director of the Providence, R.I., Department of Building Inspection wrote only that there were no noise laws in the building and zoning regulations of the city.[282]

A. NIMLO-Type Laws

The National Institute of Municipal Law Officers (NIMLO) has drafted a model ordinance prohibiting unnecessary noises. In writing this law, NIMLO officials used many existing ordinances as guides. A large number of cities have adopted laws which are exactly the same as the NIMLO ordinance, and some additional cities have enacted certain paragraphs while deleting others. Quite a few cities rely entirely on the NIMLO-type ordinance in the area of noise control, although most have enacted supplemental laws. (Although the model enumerates certain unlawful activities, the prohibition on all loud and unnecessary noise establishes this model as a "general" law.) Because of the widespread use of this ordinance it is deemed relevant to include it in its entirety.[283]

NIMLO MODEL ORDINANCE PROHIBITING UNNECESSARY NOISES

Be It Ordained by the City Council of the City of ....:

Section 8-301. It is found and declared that:

(a) The making and creation of loud, unnecessary or unusual noises within the limits of the City of .... is a condition which has existed for some time and the extent and volume of such noises is increasing;

(b) The making, creation or maintenance of such loud, unnecessary, unnatural or unusual noises which are prolonged, unusual and unnatural in their time, place and use affect and are a detriment to public health, comfort, convenience, safety, welfare and prosperity of the residents of the City of ....; and

(c) The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted, is declared as a matter of legislative determination and public policy. and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, welfare and prosperity and the peace and quiet of the City of .... and its inhabitants.

Section 8-302. It shall be unlawful for any person to make, continue, or cause to be made or continued any loud, unnecessary or unusual noise or any noise which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of others, within the limits of the city.

Section 8-303. The following acts, among others, are declared to be loud, disturbing and unnecessary noises in violation of this ordinance, but said enumeration shall not be deemed to be exclusive, namely:

(1) *Horns, Signaling Devices, etc.* The sounding of any horn or signaling device on any automobile, motorcycle, street car or other vehicle on any street or public place of the city, except as a danger warning; the creation by means of any such signaling device of any unreasonably loud or harsh sound; and the sounding of any such device for an unnecessary and unreasonable period of time. The use of any signaling device except one operated by hand or electricity; the use of any horn, whistle or other device operated by engine exhaust; and the use of any such signaling device when traffic is for any reason held up.

(2) *Radios, Phonographs, etc.* The using, operating, or permitting to be played, used or operated any radio receiving set, musical instrument, phonograph, or other machine or device for the producing or reproducing of sound in such manner as to disturb the peace, quiet and comfort of the neighboring inhabitants or at any time with louder volume than is necessary for convenient hearing for the person or persons who are in the room, vehicle or chamber in which such machine or device is operated and who are voluntary listeners thereto. The operation of any such set, instrument, phonograph, machine or device between the hours of eleven o'clock P. M. and seven o'clock A. M. in such a manner as to be plainly audible at a distance of fifty (50) feet from the building, structure or vehicle in which it is located shall be *prima facie* evidence of a violation of this section.

(3) *Loud Speakers, Amplifiers for Advertising.* The using, operating or permitting to be played, used, or operated of any radio receiving set, musical instrument, phonograph, loudspeaker, sound amplifier, or other machine or device for the producing or reproducing of sound which is cast upon the public streets for the purpose of commercial advertising or attracting the attention of the public to any building or structure.

(4) *Yelling, Shouting, etc.* Yelling, shouting, hooting, whistling, or singing on the public streets, particularly between the hours of 11 P. M. and 7 A. M. or at any time or place so as to annoy or disturb the quiet, comfort, or repose of persons in any office, or in any dwelling, hotel or other type of residence, or of any persons in the vicinity.

(5) *Animals, Birds, etc.* The keeping of any animal or bird which by causing frequent or long continued noise shall disturb the comfort or repose of any persons in the vicinity.

(6) *Steam Whistles.* The blowing of any locomotive steam whistle or steam whistle attached to any stationary boiler except to give notice of the time to begin or stop work or as a warning of fire or danger, or upon request of proper city authorities.

(7) *Exhausts.* The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motor boat, or motor vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom.

(8) *Defect in Vehicle or Load.* The use of any automobile, motorcycle, or vehicle so out of repair, so loaded or in such manner as to create loud and unnecessary grating, grinding, rattling or other noise.

(9) *Loading, Unloading, Opening Boxes.* The creation of a loud and excessive noise in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers.

(10) *Construction or Repairing of Buildings.* The erection (including excavating), demolition, alteration or repair of any building other than between the hours of 7 A.M. and 6 P.M. on week days, except in case of urgent necessity in the interest of public health and safety, and then only with a permit from the Building Inspector, which permit may be granted for a period not to exceed three (3) days or less while the emergency continues and which permit may be renewed for periods of three days or less while the emergency continues. If the Building Inspector should determine that the public health and safety will not be impaired by the erection, demolition, alteration or repair of any building or the excavation of streets and highways within the hours of 6 P.M. and 7 A.M., and if he shall further determine that loss or inconvenience would result to any party in interest, he may grant permission for such work to be done within the hours of 6 P.M. and 7 A.M., upon application being made at the time the permit for the work is awarded or during the progress of the work.

(11) *Schools, Courts, Churches, Hospitals.* The creation of any excessive noise on any street adjacent to any school, institution of learning, church or court while the same are in use, or adjacent to any hospital, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, provided conspicuous signs are displayed in such streets indicating that the same is a school, hospital or court street.

(12) *Hawkers, Peddlers.* The shouting and crying of peddlers, hawkers and vendors which disturbs the peace and quiet of the neighborhood.

(13) *Drums.* The use of any drum or other instrument or device for the purpose of attracting attention by creation of noise to any performance, show or sale.

(14) *Metal Rails, Pillars and Columns, Transportation Thereof.* The transportation of rails, pillars or columns of iron, steel or other material, over and along streets and other public places upon carts, drays, cars, trucks, or in any other manner so loaded as to cause loud noises or as to disturb the peace and quiet of such streets or other public places.

> (15) *Street Railway Cars, Operation Thereof.* The causing, permitting or continuing any excessive, unnecessary and avoidable noise in the operation of a street railway car.
>
> (16) *Pile Drivers, Hammers, etc.* The operation between the hours of 10 P. M. and 7 A. M. of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud or unusual noise.
>
> (17) *Blowers.* The operation of any noise-creating blower or power fan or any internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device sufficient to deaden such noise.
>
> SECTION 8-304. *Penalties.* Any person who violates any provision of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not exceeding $....., or by imprisonment for not more than ...... days, or by both said fine and said imprisonment.
>
> SECTION 8-305. *Separability.* It is the intention of the City Council that each separate provision of this ordinance shall be deemed independent of all other provisions herein, and it is further the intention of the City Council that if any provision of this ordinance be declared to be invalid, all other provisions thereof shall remain valid and enforceable.
>
> Adopted this .... day of ...., 19...

The following list is an enumeration of the cities in this study which have enacted the NIMLO model or ordinances very similar to it.[284]

Ann Arbor, Mich.
Birmingham, Ala.
Bismarck, N.D.
Buffalo, N.Y.
Cleveland, Ohio
Dallas, Tex.
El Paso, Tex.
Fort Lauderdale, Fla.
Greensboro, N.C.
Hartford, Conn.
Houston, Tex.
Indianapolis, Ind.
Jacksonville, Fla.
Killeen, Tex.
Las Vegas, Nev.
Manchester, N.H.
Medford, Ore.
Memphis, Tenn.
Miami Beach, Fla.
New York, N.Y.
Norfolk, Va.
Oklahoma City, Okla.
Portland, Ore.
Phoenix, Ariz.
Richmond, Va.
Washington, D.C.
White Plains, N.Y.
Wichita, Kan.
Wilmington, Del.

This is a total of 29 cities, or slightly over 1/3 of the cities surveyed in this study.

Although the model includes a provision for some penalty, most cities do not specify any penalty or enforcement agent. Many municipalities undoubtedly expect that their police forces will enforce this law. However, El Paso, Tex.,[285] and Portland, Ore.,[286] alone of the cities included in this study specifically provide for police enforcement. Norfolk, Va., has an elaborate system of fines by which the violator must pay \$5-\$25 for the first offense, \$10-\$50 for the second offense and \$25-\$100 for the third and subsequent offenses.[287] Manchester, N.H. sets a penalty of \$20 for each offense.[288] Killeen, Tex., establishes the highest fine: a maximum of \$200.[289] Indianapolis, Ind., sets a fine of not more than \$100 or imprisonment for ten days or both.[290] Of the cities surveyed, these municipalities alone provide for a penalty for a violation of a NIMLO-type ordinance.

B. Other Laws with Subjective Standards

In addition to those cities which have adopted NIMLO-type ordinances, some municipalities have enacted ordinances which apply a subjective standard but which bear no resemblance to the NIMLO model. Three of the cities in this survey fall into this category. Beverly Hills, Cal., has a law which declares it unlawful to willfully make or cause loud, unnecessary or unreasonable noise which disturbs the neighborhood or which causes discomfort to people of ordinary sensitiveness. The law then lists many criteria by which to judge unnecessariness and unreasonableness such as the volume of the noise and the background noise. Violators of this law are guilty of a misdemeanor and may be punished by a fine of not more than \$500 or imprisonment for not more than six months or both.[291] Boston, Mass., has a law forbidding unreasonably loud or disturbing noise in the city from any source or by any means. Any noise plainly audible 300 feet from the source is presumed to be loud and disturbing.[292] In Pocatello, Idaho, it is unlawful to make, continue or cause any loud, unnecessary or unusual noise or any noise which annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of others. A violation is a misdemeanor and is punishable by a fine of not more than $100 or imprisonment of not more than 30 days or both.[293]

C. Laws with Objective Standards

Some communities have responded to growing noise problems by passing general noise statutes which set specific decibel limits for all activities. Two of the municipalities surveyed have followed this procedure. These two cities, Aspen, Col.,[294] and Boulder, Col.,[295] have very similar laws which prohibit unnecessary or unusual noise and then specify that 80 dBA is considered to determine this category. The measurements are made at 25 feet from the noise source or at least 25 feet from the property line on which the noise source is located. Both laws provide a penalty of $300 and both allow permits for variances from the noise levels.[296]

D. Public Nuisance Law

Another approach taken by numerous municipalities is to control noise by means of a law declaring it to be a public nuisance. Often provision for the abatement of nuisances is provided.[297] Some cities have laws which define a nuisance as anything detrimental to the health or well-being of the population. These laws may or may not be applied to noise sources depending upon the interpretation given to them by community officials.[298]

E. Zoning Laws

Most cities have some sort of zoning ordinance which regulates structures and uses within specified areas of the community. These are frequently used to regulate noise from industrial and other sources. Because of the general nature of these laws and the fact that they do not always regulate industry alone, zoning laws may be included in that category of noise controls which are general in their regulation.

Four of the cities surveyed have zoning ordinances which do not set any objective standard but simply allow uses in certain zones which are not objectionable due to noise, certain industries which do not create more noise than the noise from other uses or simply prohibit certain noisy uses in a particular zone.[299]

However, most municipalities seem to be more sophisticated in their zoning ordinances, and objective decibel noise limits are frequently stipulated. These limits are varied and include decibel limits that are so low as to be virtually unenforceable. The limits may be applied to all uses and activities or may be limited to noise from industrial sources.[300]

Dallas, Tex., has a decibel-type zoning ordinance which includes fairly low decibel levels. In the table below, the column on the extreme left is the octave band frequencies for different sounds in Hertz. Column II gives the decibel limits on noise from any use measured at the property boundary line for any plant or operation in the I-1, I-2 or Planned Development Districts. Column III gives the decibel limits for the same districts where the property line is adjacent to a retail or commercial district and Column IV gives the corresponding limits when the property line is adjacent to a residential district.[301]

Column I	Column II	Column III	Column IV
37-75	86	84	80
75-150	76	73	68
150-300	70	67	61
300-600	65	62	55
600-1200	63	58	51
1200-2400	58	55	48
2400-4800	55	52	45
4800-9600	53	50	43
A Scale	65	63	56

The zoning regulations of the city of Binghamton, N.Y. are considerably stricter with much lower decibel limits. The noise of any activity may not exceed at any point on or beyond any lot line the maximum decibel levels for the designated octave band as set forth in the table below. Where the lot lies within 200 feet of a district permitting residences, the maximum permitted decibel limit shall be reduced by six decibels.[302]

Octave Band (Hertz)	Sound Pressure Level (dB)
0-74	60
75-149	52
150-299	50
300-599	45
600-1199	40
1200-2399	36
2400-4799	31
4800-30000	30

The frequency range of the human voice is approximately 90-800 Hz with the average human voice at approximately middle "C" which is 262 Hz. At this frequency, no noise at a property line can be higher than 50 dB except in the case of property lines bordering residential areas where the level becomes 44 dB, not a very loud limit. It is therefore unlawful for a person to talk across his property line to his neighbor in a normal conversational voice which is normally 60 dB. If this law is enforced, Binghamton must surely be the quietest city in human history.

1.4.2 Transportation

A. Engine Noises

Aircraft

Due to the preeminence of the Federal government in this area of noise control, cities rarely thrust themselves into the complex realm of aircraft noise regulation. However, six cities surveyed have passed some sort of legislation in this area. Denver, Col., has an ordinance forbidding any unusual, unnecessary or disturbing noises from aircraft. A violation of this law is an offense.[303] Salt Lake City, Utah, restricts on-the-ground noise by requiring that run-ups may only be made in areas designated by the airport manager or the control tower and that these be chosen so that the noise of the run-ups does not unreasonably inconvenience others.[304] In Scottsbluff, Neb., it is unlawful for the owner or operator of any airplane, balloon, or other device used for aerial travel to cause or permit the device to reach a point closer than 2000 feet above the surface of the ground while it is passing over Scottsbluff. A violation is a misdemeanor.[305]

Park Ridge, Ill., which adjoins Chicago's O'Hare International Airport, has a law providing for noise from aircraft. The law establishes runway extensions defined as areas 1,200 feet wide and five miles long which adjoin existing runways at O'Hare, the center line of the runway continuing as the center line of the extension. Noise above 95 dBC measured within this area is prohibited. However, if an easement over the land has been purchased or agreed on, the noise is permitted. Park Ridge sets a penalty of between $10 and $200 for each offense, each separate day in which there is a violation constituting a separate offense.[306]

Officials in Santa Barbara, Cal., recently adopted a law[307] which restricts all nonflight activities of aircraft to the community noise equivalent level (CNEL) of 80 dBA. (See discussion of California's law, page 1-71.) The law also provides for run-up areas, runway preference, and gives some provisions concerning takeoffs and landings. This ordinance, the most extensive aircraft noise regulation on the local level, has yet to be litigated.

Portland, Ore., has considerable regulation of helicopters and heliports.[308] Helistops are prohibited in residential and commercial zones if the noise from these facilities at landing or takeoff exceeds 90 dB at the boundary of adjacent property in residential areas, or at the nearest occupied premises in commercial zones. If the city planning commissioner determines that a planned heliport would disturb the use and enjoyment of neighboring property, the heliport may not be built.

Automobiles and Trucks

The importance of streets and highways to local transportation and the consequent interest of communities in regulating these thoroughfares accounts for the wide regulation of automobiles and other street vehicles on the local level. As with the states, communities regulate automobiles more than perhaps any other noise source.

Numerous municipalities have enacted ordinances controlling all noise emanating from automobiles. Twelve communities in this study have such laws which apply a subjective standard, usually "unreasonable" or "unnecessary."[309] Salt Lake City, Utah, has such a law[310] as well as one which forbids excessive and unusual noise from motor vehicles in quiet zones.[311] In Beverly Hills, Cal., it is unlawful to repair, rebuild or test a vehicle in a residential area so as to discomfort or annoy reasonable persons in the area.[312] Beverly Hills also forbids the operation of a vehicle not on public streets so as to annoy a reasonable person of normal sensitiveness.[313] A penalty or fine of not more than $500, imprisonment of not more than six months, or both is provided.[314] The NIMLO model ordinance makes unlawful the use of any vehicle so out of repair as to create loud and unnecessary grating, grinding, rattling or other noise. Thus, most cities with a NIMLO-type law regulate vehicles in need of repair.

Recently, a number of cities have enacted general vehicle noise laws which set objective decibel limits on noise from the entire vehicle. Five of the cities in this survey have such laws. Ann Arbor, Mich., sets a limit of 90 dBA measured at 25 feet with the vehicle traveling at 20 mph.[315] Pocatello, Idaho, sets the limit at 92 dBA at 20 feet,[316] while Cincinnati, Ohio, forbids noise over 95 dBA at 20 feet.[317] Of these three cities, only Pocatello establishes a penalty in the law. A fine of not more than $100 or imprisonment for not more than 30 days or both is provided.[318]

Chicago, Ill., and Minneapolis, Minn., have the most extensive vehicle noise laws of the major cities of the United States. The charts below illustrate the various provisions of these two laws. All measurements are made at 50 feet from the center line of travel.[319]

Type of Vehicle	35 mph or less	over 35 mph
Chicago		
any motor vehicle of a manufacturers GVW rating of 8,000 lbs or more		
before Jan. 1, 1973	88 dBA	90 dBA
after Jan. 1, 1973	86 dBA	90 dBA
Other motor vehicles [except motorcycles]		
after Jan. 1, 1970	76 dBA	82 dBA
after Jan. 1, 1978	70 dBA	79 dBA
Minneapolis		
any motor vehicle with a manufacturer's GVW rating of 6,000 lbs or more		
before Jan. 1, 1975	88 dBA	90 dBA
after Jan. 1, 1975	86 dBA	90 dBA
Other motor vehicles	82 dBA	86 dBA

These two cities also prohibit the sale of automobiles which exceed the noise limits set forth below.[320] Again all measurements are at 50 feet.

Type of Vehicle	Date of Manufacture	Noise Limit
Chicago		
Any motor vehicle with a manufacturer's GVW rating of 8,000 lbs. or more	after Jan. 1, 1968	88 dBA
	after Jan. 1, 1973	86 dBA
	after Jan. 1, 1975	84 dBA
	after Jan. 1, 1980	75 dBA

Type of Vehicle	Date of Manufacture	Noise Limit
Any other motor vehicle [except motorcycles]	before Jan. 1, 1973	86 dBA
	after Jan. 1, 1973	84 dBA
	after Jan. 1, 1975	80 dBA
	after Jan. 1, 1980	75 dBA
Minneapolis		
Any motor vehicle with a manufacturer's GVW of 6,000 lbs. or more	after Jan. 1, 1972	88 dBA
	after Jan. 1, 1975	86 dBA
Any other motor vehicle [except motorcycles]	after Jan. 1, 1972	86 dBA
	after Jan. 1, 1975	84 dBA

Chicago provides for a penalty of $15-$300 for the first offense, $50-$500 for the second offense and each subsequent offense or incarceration for a term not to exceed six months or both fine and imprisonment.[321]

Just as at the State level, one of the most commonly used methods of noise control is the muffler statute. Most of these statutes simply state that a muffler is required and that cutouts, bypasses and similar devices are prohibited.[322] Many cities add the provision that it is unlawful to modify exhaust systems in such a way as to increase the volume of noise.[323] Madison, Wis., law provides that a noise above 95 dBA measured at not less than 20 feet from rear of vehicle may be taken as evidence of a violation.[324] In Richmond, Va., it is illegal to sell a muffler without baffle plates[325] and in Salt Lake City, Utah, it is unlawful to sell any equipment designed to increase the exhaust noise.[326] The NIMLO model ordinance also contains a requirement of a muffler on every motor vehicle.

Although muffler ordinances are enforced by local police, enforcement provisions are almost never specified in the muffler laws. Penalties too are rarely specified. Decatur, Ill., does provide a fine of between $1 and $200 for a violation.[327] Cleveland, Ohio, sets a fine of $10 to $50 for each offense.[328]

In summary, automobiles are widely regulated on the local level. Seventeen (or approximately 20%) of the cities of our study have some laws regulating noise from the entire vehicle. Thirty-three (well over 1/3) of the cities have a muffler statute of some kind. When the large number of State vehicle and muffler laws is added to this total it is apparent that the automobile is one of the most heavily regulated noise sources in our society.

Motorcycles

As motor vehicles, motorcycles are subject to most of the same vehicle and muffler statutes discussed above. Some NIMLO-type ordinances actually specify that motorcycles are subject to the muffler requirement imposed on automobiles. However, some municipalities are not satisfied to leave the motorcycle to be regulated by these vehicle statutes alone. Missoula, Mt., requires that all motorcycles be equipped with mufflers.[329] Detroit, Mich., also requires mufflers and adds a prohibition against cutouts as well as a fine of not less than $25 for a violation.[330] In their extensive new vehicle laws, Chicago and Minneapolis have provided for motorcycle regulation. Chicago law forbids the operation of any motorcycle other than a motor-driven cycle[331] which emits more than 82 dBA at 35 mph or less or 86 dBA at over 35 mph until January 1, 1978. On that date the limits change to 78 dBA at 35 mph or less and 82 dBA above 35 mph. All measurements are made at 50 feet. Chicago forbids the sale of motorcycles which violate the following limits, measured at 50 feet:[332]

Motorcycles manufactured:

before January 1, 1970	92 dBA
after January 1, 1970	88 dBA
after January 1, 1973	86 dBA
after January 1, 1975	84 dBA
after January 1, 1980	75 dBA

Minneapolis sets the same noise limit on the operation of mot
cycles as it does on automobiles: 82 dBA in zones with speed
of 35 mph or less and 86 dBA in zones with speed limits over
Minneapolis does provide specific noise limits on motorcycles
sold, however. No motorcycle manufactured before January 1,
may be sold which emits more than 90 dBA measured at 50 feet.
cycles manufactured during 1972 may not be sold if the noise l
exceeds 88 dBA. For motorcycles manufactured after January 1,
the noise level is 86 dBA.[333] Chicago provides a penalty of $
$300 for the first offense, and $50 to $500 for the second and
sequent offenses.[334]

Boats

A number of communities have found it necessary to regula
the noise of the engines of motorboats and other watercraft.
of these laws require that the vessels be equipped with muffle
and often prohibit cutouts except for boats participating in
regattas.[335] As is true with other noise sources, Chicago has
the most extensive law. It is unlawful to operate any engine-
driven pleasure vessel or motorboat in the Windy City or withi
two miles of the city limits so as to exceed 85 dBA of noise m
sured at 50 feet. After January 1, 1975, the noise limit drop
to 76 dBA. The usual Chicago penalty of $15-$300 for the firs
offense and $50-$500 for subsequent offenses applies.[336]

Snowmobiles

Cities have been slow in responding to the new noise source of snowmobiles and other recreational vehicles. The most obvious explanation for this is that one rarely sees a snowmobile being driven through the streets of American cities. However, Chicago, through its recently enacted noise ordinance, provides for the regulation of snowmobiles and other recreational vehicles such as dune buggies and go-carts. No one may operate one of these vehicles if the noise emitted by it exceeds 86 dBA at 50 feet. After January 1, 1973, the permissible limit will change to 82 dBA. No snowmobile manufactured after January 1, 1971, may be sold if it creates noise in excess of 86 dBA. The limit changes to 82 dBA for snowmobiles manufactured after June 1, 1972 and to 73 dBA for snowmobiles manufactured after June 1, 1974. For other recreational vehicles, the permissible noise level is 86 dBA for those manufactured after January 1, 1971, 82 dBA for those manufactured after January 1, 1973 and 73 dBA for those manufactured after January 1, 1975, all measurements being made at 50 feet. The penalty of a fine of $15-$300 for the first offense and $50-$500 for subsequent offenses is provided.[337]

The small mountain town of Dillon, Col. has a law which, if enforced, would provide a more effective control of noise from snowmobiles than even the Chicago ordinance. Dillon allows snowmobile operations on marked trails only. At this time there are no marked trails in Dillon.[338]

B. Vehicle Operating Procedures

Horns and Warning Devices

Many communities in the United States have reached the conclusion that it is not sufficient to regulate noise from vehicle engines alone and have regulated other aspects of the operation of the vehicle. The most commonly regulated noise source in this area is the horn, bell, whistle or other warning device. Automobile horns are given more consideration than the horns of any other vehicles. First, the NIMLO model ordinance forbids unlimited use of auto and other vehicle horns. Many communities without a NIMLO statute have passed laws similar to it. The standard non-NIMLO horn statute begins by requiring horns on all motor vehicles but goes on to declare that it is illegal to operate a horn which makes an unreasonably loud or harsh sound and that no horn may be sounded except when reasonably necessary to warn others. There is also a prohibition of long, continuous sounding of the horn. Often these laws state further that it is illegal for any vehicle not authorized for emergency use to be equipped with a siren. Twenty-two of the cities in this survey have enacted statutes similar to this, not as part of a NIMLO-type ordinance.[339] Some communities either restrict horn-blowing by vehicle operators only in quiet zones[340] or add this further restriction to their general horn-blowing ordinance.[341] Most cities do not establish a fine for a violation in the law itself. The fine for all unlawful noise ($15-$300 for the first offense, $50-$500 for subsequent offenses) provided by the new Chicago noise ordinance applies to the new horn statute.[342] Seattle, Wash., sets a fine of no more than $300 or imprisonment of not more than 90 days or both for a violation of its provision on sirens.[343] Decatur, Ill., law forbids taxi drivers to blow their horns to attract passengers and sets a fine of $5 to $200 for each violation.[344]

Whistles, bells, and other devices on trains are also of concern to many communities. A restriction on their use appears in the NIMLO model ordinance and has been enacted in that form by many cities. A number of cities enact some kind of restriction, usually banning unnecessary blowing of a locomotive whistle, apart from any NIMLO version.[345] Beverly Hills, Cal., alone of all the municipalities in this survey, sets a decibel limit on train horns or whistles operated from 10:00 P.M. to 7:00 A.M. This limit is 89 dBA measured 300 feet or more from the source.[346]

Whistles and horns on steamships and other vessels are regulated by two cities in this survey. Detroit prohibits the sounding of any steam whistle of any steamer while lying at any wharf or when approaching or leaving such wharf except when absolutely necessary or when prescribed by U.S. law.[347] Portland, Ore., forbids the blowing of a whistle on any vessel for any purpose other than required by law.[348]

Other Operation Procedures

The NIMLO model ordinance has two provisions for the carrying of materials in vehicles. A vehicle may not be loaded in such a manner as to create loud and unnecessary grating, grinding, rattling or other noise. Also,

> the transportation of rails, pillars or columns of iron, steel or other material, over and along streets and other public places upon carts, drays, cars, trucks,

> or in any other manner so loaded as to cause loud noises or as to disturb the peace and quiet of such streets or other public places[349]

is forbidden. Richmond, Va.,[350] and Portland, Ore.,[351] have laws which similarly prohibit the transportation of iron and other materials unless an effort has been made to deaden the noise from them.

Chicago has a law forbidding the operation of motor vehicles of a weight in excess of four tons for a consecutive period longer than two minutes while such vehicle is standing on private property and located within 150 feet of property zoned and used for residential purposes. The law provides an exception for buses as well as vehicles within a completely enclosed structure.[352]

A Nashville, Tenn., ordinance makes it unlawful to carry on any public way any substance, animal or thing likely to become a public nuisance or which shall imperil the life, health or safety of any persons by giving off noises which become offensive.[353]

1.4.3 Commercial

A. Commercial Noise Other Than Advertising

Noise from commercial establishments or from persons acting in business capacities is widely regulated on the local level. There seems to be little consistency among municipalities in this area with each city passing its own ordinances and taking its own approach to the regulation of business noise. Although this fact makes the problem of describing regulation in this area difficult, it is possible to divide the regulation into five categories: 1) regulation of noise from business establishments, 2) regulation of some particular accessory or device used by the business or some noisy aspect of the commercial operation, 3) regulation of musicians, 4) regulation of music producing machines, and 5) regulation of sound equipment used for purposes other than advertising.

The control of noise from business establishments generally can further be divided into two categories: regulation of all businesses and regulation of particular businesses. Some cities have laws restricting loud and unusual noise from buildings.[354] These statutes may be applied to commercial establishments as well as apartment houses and other buildings. A number of cities, though, specify that noise from businesses must be restricted, usually to the extent that it is not audible outside the business at certain times.[355] Salt Lake City, Utah, does permit soft music to be directed at public streets from businesses 10:00 A.M. to 9:00 P.M. as long as it is not audible more than 50 feet away.[356]

Many cities having experienced unwanted sound from specific commercial establishments have taken steps to curtail this noise. The particular businesses and activities regulated include restaurants and hotels,[357] poolhalls,[358] machine shops,[359] foundries,[360] junk yards,[361] circuses and rodeos,[362] filling stations,[363] drive-in restaurants,[364] and automobile wash racks.[365] The noise from tourist homes[366] and convalescent homes[367] is also restricted by directing the operators of such places to endeavor to lower the noise from their buildings. Some communities have enacted laws regulating the noise from places of public entertainment such as theatres,[368] opera houses,[369] concerts[370] and dances.[371] The noise made by individual vendors is also restricted.[372]

Cities rarely specify enforcement agents in these laws although this responsibility undoubtedly falls to the local police. Penalties are not usually prescribed and when they are the range is great: from a fine of $1 or one day imprisonment for the first offense of the unlawful holding of a dance or other public entertainment in Cleveland[373] to the $100 per day fine for operating a loud machine shop within 200 feet of any residence in Chicago[374] and a maximum of a $200 per day fine for operating a noisy drive-in restaurant in Decatur, Ill.[375]

The second category of nonadvertising commercial noise is the noise from some particular accessory or some noisy aspect of the business. The NIMLO model ordinance has several provisions which apply in this area. They include restrictions on the noise from steam whistles, power fans or blowers, the exhaust of stationary steam boilers, the loading and unloading of any vehicle and the opening and destruction of bales, boxes and other containers.[376] Many of these sources are regulated by similar laws by communities which do not have a NIMLO-type ordinance. For example, Chicago, Ill., Detroit, Mich., New Orleans, La., and Seattle, Wash., place restrictions on the blowing of steam whistles.[377] The discharge of noisy exhaust from steam engines is restricted by Nashville, Tenn., and Seattle, Wash.[378] The increased use of air-conditioning equipment by commercial establishments has caused several cities surveyed to pass laws governing the units running this equipment.[379] New Haven, Conn., has declared that noise in excess of 55 dB on the A, B or C scale measured at the property line or at least 15 feet from the air-conditioning unit is illegal. If the operation of this equipment violates this standard it must be discontinued immediately.[380]

Some cities regulate musicians who make their living by playing their instruments on public streets. Most of these laws involve a curfew, often from 9:00 P.M. to 9:00 A.M.,[381] while some prohibit the playing of instruments within hospital zones.[382] There are some laws, however, which completely ban private individuals from playing in public places.[383] These laws are often directed at "itinerant musicians"[384] or organ grinders.[385] Some cities however, have statutes directed against bands playing on the city streets.[386]

Devices used to produce music are also regulated at the local level. Often these ordinances prohibit noise which is audible outside the premises in which the machine is located. This prohibition may be in effect at all times[387] or only during specific hours, often in the evenings.[388] A law in Minneapolis, Minn., specifically prohibits juke boxes which create sound audible more than 25 feet from the premises.[389] In Washington, D.C., it is necessary to have a permit from the Chief of Police before a music-producing device can be used.[390]

Sound equipment is widely regulated at the local level. The laws governing the use of this equipment which seem to be directed at commercial noise sources other than advertisers will be discussed here. The regulation of advertising noise will be discussed in the next subsection and those laws regulating the general use of sound equipment will be considered in Section 1.4.6. Several cities have laws governing the nonadvertising commercial use of amplifying equipment. On occasion this regulation takes the form of a curfew or zonal restriction.[391] The laws may also be directed at sound equipment on airplanes or boats.[392] Des Moines, Iowa, prohibits all sound equipment at its airport except when authorized.[393] It must be remembered that those laws which apply to the general regulation of sound equipment apply to its commercial applications as well. A discussion of these laws will be found in Section 1.4.6.

B. Advertising

Noises from advertisers is one of the most heavily regulated sources of unwanted sound at the local level. Unlike general speech, guaranteed by the first amendment and given due respect by municipalities, advertising is viewed as being of minimal social value when compared with its capacity to disturb the peace and annoy the citizenry. For this reason the laws in this area seem to run the gamut of coverage, from the individual peddler crying his wares to complex sound amplification devices which are used to advertise from aircraft.

Although the existence of the simple itinerant peddler selling various articles along the streets of American cities is largely a thing of the past, many municipalities have laws governing this type of individual. Often these take the form of a prohibition on vendors from shouting their goods on the public streets in certain areas of the city[394] or at certain times[395] while others prohibit all excess noise from peddlers.[396] Some municipalities make specific provisions for peddlers and vendors who would use amplifiers, horns or other sound devices to attract attention. Usually this is a prohibition on the use of this type of equipment.[397] Most cities do not specify any penalty in the laws governing peddlers. The law of Cleveland, Ohio, does state that a violation of its laws on this subject carries a fine of not more than $50 or imprisonment for not over 30 days.[398] Decatur, Ill., provides a fine of not less than $5 nor more than $200[399] while Beverly Hills, Cal., deems violators guilty of a misdemeanor and subjects them to a fine of not more than $500 or imprisonment for not over six months or both.[400]

The use of stationary sound amplification equipment for any advertising, extending beyond peddlers and hawkers, is amply provided for in municipal codes. In some cities it is completely prohibited.[401] In others use of this type of equipment is restricted to certain times.[402] Buffalo, New York, prohibits advertising noise that unreasonably disturbs the public. Noise distinctly audible 50 feet from the building is deemed to be disturbing.[403]

Of note also is the fact that some cities provide for sound equipment on vehicles and aircraft. Buffalo, N.Y., and Greensboro, N.C., prohibit sound amplification equipment on vehicles.[404] Detroit prohibits it in the loop area of the city.[405] Richmond, Va., restricts its use to vehicles in parades and loudspeakers used in auctions.[406] Chicago, Ill., and Miami Beach, Fla., prohibit all use of sound equipment for advertising by aircraft.[407] Houston, Tex., requires a permit for aircraft advertising and does not allow it on Sundays or at any time within one-half mile of any hospital.[408] Both Philadelphia, Pa., and Washington, D.C., restrict this equipment on vehicles and aircraft.[409]

Thus, commercial noise is restricted to some extent in many cities. However, although the total list of sources regulated is long, any one city usually enacts legislation to combat noise from only one or two of these sources. The legislation appears to be done in piecemeal fashion and in response to particular community problems.

1.4.4 Construction

Construction noise can be divided into two categories: noise from the construction site itself and requirements concerning acoustical treatment of new buildings so as to limit noise experienced by the occupants.

A. Construction Site Noise

Noise emanating from building and highway construction projects is some of the most irritating and dangerous noise in our society. Pile drivers, steam shovels, jack hammers and other similar equipment produce a significant percentage of the noise plaguing American cities.

The NIMLO model ordinance has two provisions governing construction noise. The first restricts work on buildings to between the hours of 7:00 A.M. and 6:00 P.M. weekdays, except in the case of emergencies and then only with a permit from a city official. The second provision outlaws the use of pile drivers, steam shovels, pneumatic hammers and certain other equipment from 10:00 P.M. to 7:00 A.M. if this use is attended by loud or unnusual noise.[410] Most of the cities which have enacted a NIMLO-type ordinance have included the provision governing work on buildings while the enactment of the provision concerning certain equipment is much less wide-spread.

Many cities without a NIMLO ordinance have adopted laws similar to the first NIMLO provision discussed above. Often there is an added provision prohibiting construction, excavation or other building operations in or within a certain distance or residential zones at certain times, frequently on Sundays.[411]

The new Minneapolis, Minn., noise ordinance applies a decibel limit on construction activities. No construction equipment shall be operated if sound levels from such operation exceeds 100 dB along any property line. In September, 1973 the new limit will be 95 dB and in September, 1975 it will change to 90 dB. In addition, no internal combustion engine when operated with construction or demolition equipment shall be operated if noise from it exceeds 88 dB along any property lines.[412]

Chicago, Ill., forbids the operation of equipment used in building operations 9:30 P.M. to 8:00 A.M. within 600 feet of any building used for residential or hospital purposes except for work on public improvements and work of public utilities. Chicago takes the further step of limiting noise on new equipment. No one may sell or lease any equipment which produces more noise, measured at 50 feet, than the following limits.[413]

Type:	Levels:
Construction machinery such as dozers, loaders, power shovels, derricks, ditchers trenchers, pavement breakers, compressors, pneumatic powered equipment, but not including pile drivers, manufactured after:	
January 1, 1972	94 dBA
January 1, 1973	88 dBA
January 1, 1975	86 dBA
January 1, 1980	80 dBA

Penalties for a violation are prescribed by several cities. They are practically all in the $5-$500 category with a possible imprisonment of 90 days or six months.[414]

Building Codes

In the fall of 1968 New York City adopted a new Building Cod to take effect December 6, 1969, although builders could choose t bring themselves under the code prior to December 6. Subarticle 1208.0 deals with noise control in multiple dwellings. The law, which only applies to residential structures for more than two families, sets up standards for the construction of new multiple dwellings using reference standards. These reference standards are standards adopted by associations such as the American Societ of Heating, Refrigerating and Air Conditioning Engineers and the United States of America Standards Institute.

Noise limits in terms of Sound Transmission Class (STC) and Impact Noise Rating (INR), based on the reference standards, are given. (For a discussion of the meaning of these units see, supra page 1-46.) Walls, partitions and floor-ceiling constructions separating dwelling units from each other or from public halls, corridors, or stairs must have a minimum STC rating of 45. For permits issued after January 1, 1972, the minimum STC rating chang to 50. Floor-ceiling constructions separating dwelling units from each other or from public halls or corridors must have a minimum INR rating of 0. Provision is also made to limit acoustical impact from mechanical equipment located within the structure. These must be separated by constructions which provide a minimum STC rating of 50. In addition maximum standards are set for mechanical equipment, such levels varying as a function of the position of the equipment relative to the building.[415]

Whether or not a building violates the noise standards can not be determined until the building is constructed, of course. After construction is completed, the builder is required to engage an independent firm to conduct measurements to determine whether or not the structure has violated the noise limits. If the Department of Buildings is not satisfied with the results or manner in which the tests were conducted, it may conduct its own tests before issuing the permit necessary for opening the building to occupants.

The new code went into effect on December 6, 1969. Before this deadline building contractors rushed to acquire building permits. No building construction for multiple occupancy has been completed since that time so no enforcement experience is available.[416]

The new code has been criticized. First, it has no provision for commercial and other types of buildings as well as no provision for single and double occupancy dwellings. Except for airborne noises produced by certain mechanical equipment the new code does not provide occupants with protection against exterior noises.[417] The Building Department has only four inspectors for the entire city, and these inspectors have only been given a one week course in how to measure the noise.[418]

Some of the other cities surveyed do have noise limits in their building codes. However, the material supplied by the New York Department of Buildings was the only detailed code information made available to this study.[419]

1.4.5 Occupational

Although control of occupational noise is generally considered to be the province of Federal and State governments, two cities in this survey have set standards concerning noise to which any worker can be subjected. These cities are Detroit and Philadelphia. Both have adopted limits similar to the Walsh-Healey Federal noise limits described earlier.[420]

1.4.6 Miscellaneous

A. Disturbers of the Peace

Since individuals who disturb the peace and quiet of the community are a peculiarly local problem, it is not surprising to find them restricted greatly at the local level. Many of the cities in this survey have enacted laws prohibiting noisy individuals who annoy others. Many of these laws simply state that it is unlawful to create loud and unnecessary noise or noise which disturbs or annoys persons of reasonable sensitiveness.[421] In addition the NIMLO model ordinance forbids yelling, shouting and similar conduct on public streets.[422] Cleveland has two provisions in its code which cover noisy behavior.[423] Beverly Hills law forbids the operation of any radio, television or other similar device from 10:00 P.M. to 7:00 A.M. so as to disturb the peace. Any noise exceeding the ambient noise level at the property line or in any adjoining apartment by five decibels is deemed prima facie evidence of a violation.[424] Many cities enact ordinances prohibiting excessive noise in certain areas, often within quiet zones or near hospitals, schools and churches.[425] Chicago has a law stating that no one owning or in possession of any building of premises may make such use of them as will destroy the peace of the neighborhood.[426] Sioux Falls, S.D., forbids any one in control of a public place to allow any musical instrument, radio or other device to be operated so as to disturb the peace.[427] Killeen, Tex., law prohibits the disturbance of any public meeting by noise or tumult.[428] In Detroit, it is unlawful for anyone in any vehicle to make unnecessarily loud noises which disturb the peace of the neighborhood.[429] Minneapolis has a law forbidding anyone from participating in any party or gathering from which noise emanates of a sufficient volume to disturb others in the vicinity.[430]

The penalties for disturbance of the peace are often specified in the legislation. A fine of between $10 or $25 and $200 is a common penalty.[431] Chicago imposes a fine of $50,[432] Norfolk, one of $25.[433]

Thus, the earliest source of noise, the individual human being unaided by sophisticated equipment is still one of the most heavily regulated sources.

B. Domestic

Noise from domestic sources is just beginning to come under serious regulation by American cities. For this reason the laws in this area are few but are more sophisticated and often set a decibel standard for the noise. Minneapolis recently adopted a new law specifying noise limits in decibels for various zones of the city. If the sound of power lawn mowers, snowblowers and other domestic equipment is within these noise levels, they can be used at any time. If the noise is not within these levels, its use is restricted to 7:30 A.M. to 9:00 P.M. weekdays and 9:00 A.M.

to 9:00 PM. Saturdays, Sundays and holidays.[434] In Beverly Hills it is unlawful to operate any machinery, equipment or air-conditioning apparatus if the noise level at the property line is made to exceed the ambient noise level by more than five decibels.[435]

Chicago's new noise ordinance contains a provision governing noise limits of new equipment. No one may sell or lease powered equipment of 20 horsepower or less intended for infrequent use in residential areas, such as chain saws, and powered hand tools, manufactured after January 1, 1972, which produces more than 88 dBA measured at 50 feet. The limits for the same equipment manufactured after January 1, 1973, and after January 1, 1980 are 84 dBA and 80 dBA respectively. Powered equipment manufactured after January 1, 1972, intended for frequent use, such as lawn mowers and snow removal equipment, must not be sold if it emits over 74 dBA. The limits for the same equipment manufactured after January 1, 1975, and January 1, 1978 are 70 dBA and 65 dBA respectively.[436]

There are ordinances which apply a subjective standard. For example, it is unlawful to operate power tools and machinery resulting in loud and excessive noise between 10:00 P.M. and 7:00 A.M. in residential areas of Seattle.[437] Appliances so out of repair as to cause loud noises which disturb and annoy others are illegal in Greensboro, N.C.[438]

In Philadelphia, it is unlawful to make unnecessary noise in the handling of ash, trash and garbage cans either in loading or unloading them.[439]

C. Sound Producing and Amplifying Equipment

The control of sound producing and amplifying equipment used for commercial and advertising purposes has already been discussed in Section 1.4.3. This subsection will be devoted to those laws which constrain the use of this equipment by private citizens or nonprofit organizations.

Some municipalities take the uncomplicated step of banning all use of sound equipment which by producing loud and raucous noise disturbs others. Four of the cities in this survey take this approach.[440] Two cities further provide that if the sound from electronic apparatus for sound producing or amplifying is audible at a certain distance from the source between 10:00 P.M. and 7:00 A.M. there is a violation.[441] Washington, D.C., prohibits all use of these devices for any purpose.[442]

Numerous cities prohibit all use of sound equipment without prior authorization in the form of a permit. The laws then provide certain regulations of the permitted sound equipment, usually prohibiting its use during given hours and in certain places, setting a limit on the sound which can be produced (usually by specifying that it can not be audible at a certain distance), restricting the sound amplified to human speech or music, and providing other restrictions. Twelve of the cities surveyed have laws which fall into this category, two of them requiring a permit only for sound trucks.[443]

Des Moines, Iowa, has a complex ordinance governing this equipment. This city issues four types of permits and allows only certain permits for certain uses for sound equipment. Each type of permit has separate restrictions. Three of the permit types limit the volume of the sound produced to 70 dBA measured at the closest corner of the nearest residence and 100 dBA at 50 feet from the source. Sound trucks can produce no more than 80 dBA at 100 feet and may only be used in nonresidential areas between 9:00 A.M. and 9:00 P.M.[444]

Beverly Hills's law on the subject prohibits noise which exceeds the ambient noise level by 15 dBA measured at the property line.[445]

A few cities make special provisions for sound trucks, either forbidding them in residential areas[446] or placing some other restrictions on their use.[447] Madison, Wis., limits the use of sound equipment on aircraft over the city.[448]

A few cities provide specific penalties for violations of these laws. Salt Lake City, Utah, sets a fine of not more than $299 or imprisonment of not more than six months or both.[449] The penalty in Santa Barbara, Cal., is a fine not in excess of $500 or imprisonment for not over six months or both.[450]

D. Noisy Animals

There are three basic approaches used by local governments to control the noise from animals owned by citizens of the community. An approach used by many communities is to prohibit noise from animals which disturbs the peace and quiet of other residents of the community. Many other localities extend the definition of such a disturbance to cover a disturbance of any person,[451] while the more sensible legal approach applies only to disturbances of reasonable persons of ordinary sensibilities.[452] The third category of regulation of noisy animals considers the noise as a nuisance.[453] In both the nuisance situation and the disturbing the peace type statute are instances where local governments have declared that each day of violation shall constitute a separate offense.[454] Many of the communities that have not included these laws under nuisance have not established, in the language of the section, the manner of enforcement or the penalties that shall apply for violators. A few have made specific provisions in this regard, considering violations as misdemeanors punishable by fine and/or imprisonment ranging from a low of $10[455] to a high of $500[456] and imprisonment of up to six months. A special 24 hour period of grace is granted to a violator in at least one of the cities surveyed during which time he may avoid liability by taking steps to abate the noise from the animal.[457]

The amount of noise that must be produced by the animal to constitute a violation ranges from a single event to prolonged and continuous noise. NIMLO's model ordinance has a provision for abating noise from animals which is of the type that requires, "frequent or long-continued noise."[458]

1.4.7 Trends in Local Noise Regulation

The most significant developments in noise control legislation have come in the last two years, with several large cities and a number of smaller urban communities leading the way. Not surprisingly, it is those communities with pervasive day-to-day noise problems which have made the most persistent efforts to define noise pollution, set decibel standards, and develop enforcement machinery to control the problem. Concurrently, some cities, notably Chicago, Boston, and New York, have established noise abatement offices as adjuncts to their environmental protection agencies, thereby giving their planning and enforcement efforts a focus that was lacking hitherto. In short, as noise pollution has become increasingly severe, cities most seriously affected have responded by creating new governmental entities with specific responsibilities for the study and control of noise.

In large measure, these same cities have abandoned the vague and subjective standards (such as "no unreasonable or excessive noise") common elsewhere in the country, recognizing that unambiguous, measurable standards are prerequisites to effective noise control. However, standards-setting is both complex and difficult since standards must reflect not only what is technically feasible, and, thereby, practically enforceable, but also what is socially desirable. In short, striking a realistic balance between competing considerations is easily the most formidable task faced in setting standards, and failure to do so is likely to create insuperable enforcement problems. For example, the city of Binghamton, New York, has set dBA noise standards that are so stringent and arbitrary as to be virtually unenforceable. Conversely, dBA standards that are too permissive are equally valueless in controlling noise pollution.

It is safe to say, however, that the cities which have made serious attempts to deal with the noise problem have been acutely aware of the need to strike an appropriate balance. Boston's Air Pollution and Control Commission, for example, has been soliciting expert opinions for nearly a year in order to lay a foundation for the development and promulgation of realistic decibel standards. Similarly, Chicago's Environmental Committee conducted extensive hearings and obtained a wide range of expert recommendations during 1970 and early 1971 -- efforts which recently bore fruit in what is probably the most comprehensive noise ordinance in the nation. After intensive study, New York City's Environmental Protection Administration submitted a new noise control plan in July of 1971 which, for the first time, sets strict noise standards and provides tough enforcement powers for control of a wide range of noise sources that have been hitherto unregulated in New York.

To the extent that trends are discernible in the most advanced noise control ordinances, it is clear that cities are seeking to impose increasingly tough standards over time on manufacturers and sellers of motor vehicles and other noisy machinery and equipment. Chicago's new noise ordinance, for example, covers all motor vehicles and various machinery and equipment ranging from bulldozers to lawnmowers, dune buggies, go-carts, snowmobiles, and the like, and imposes graduated dBA standards to be met by sellers and manufacturers within stated time periods. For instance, no one will be permitted to sell motorcycles manufactured after January 1, 1970, that are noisier than 88 dBA, noisier than 86 dBA after January 1, 1973, 84 dBA after January 1, 1975, and 75 dBA after 1980. Similar provisions apply to owners and operators. Although New York City's proposed code is far less ambitious than Chicago's efforts to control motor vehicle noise, it has adopted the same graduated approach with respect to reduction of noise from air compressors used in construction. These efforts clearly reflect a growing desire on the part of cities to force manufacturers to redesign products to meet stricter noise standards, but it is a serious question, covered elsewhere in this report, as to whether such standards will be unenforceable by virtue of preemption of such authority by State and Federal governments.

Beyond such standards-setting as described above, cities rely on their traditional authority to impose curfews and establish zoning laws for control of noise. Here again, to the extent that Chicago's noise ordinance is an indicator, the trend seems to be one of developing increasingly complex and sophisticated dBA standards in and near various residential, commercial, and manufacturing districts. Given the recent enactment of Chicago's ordinance, evidence is not yet available on its success in administering the new zoning standards. (It should be noted, however, that the more complex such zoning standards are, the greater the strain will be on a city's enforcement resources.)

Along with the growing recognition of the need for measurable standards and centralization of authority for noise control, cities with the most advanced noise control programs are developing, or already have, a full range of enforcement procedures. The proposed New York City Code, for example, gives the Environmental Protection Administration authority to test and certify any device for non-personal use that may be noisier than 40 dBA at ten feet from the source, to seal any device that is in violation, to order forced repairs, and to issue cease and desist orders. In addition, civil and criminal penalties can be severe, ranging from fines of $50 to $5000 (assessed against corporations) for first and subsequent violations, and up to 45 days imprisonment for persons guilty of a third offense. The proposed New York City Code also has a provision awarding 25% of any fine assessed to persons giving information leading to conviction, thus providing an added incentive to enforcement. Chicago's penalty structure is less severe, but it too reflects a concern that penalties must be large enough to be viable deterrents against violation.

In conclusion, it should be noted that the establishment of noise control offices with extensive enforcement powers places an added strain on the already-burdened financial and human resources of these cities. Needless to say, enforcement cannot be made effective without adequate resources. As the Administrator of New York City's Environmental Protection Administration recently testified in a Senate Hearing:

> We estimate that this expense budget [$100,000 for FY 1972] should be as much as three times as large if we are to adequately implement our new noise code. . . . These expenses will, of course, escalate in the following years.[459]

In short, the successful enforcement of new local noise ordinances will probably hinge on the availability of funds from sources outside the cities themselves.

1.4.8 Gaps in Local Noise Regulation

Although there is wider regulation of noise on the local level than on any other, there are still some noise sources which have escaped restriction. Railroad engine noise is not regulated by any locality surveyed. Certain types of equipment used in the construction of either buildings or highways are not regulated.

Domestic appliances some of which create considerable noise are exempt as well.

To a greater extent on the local level than on any of the others, however, it is artificial to consider the noise regulated by all cities and towns. Although it can be said that most construction equipment is regulated at the local level, this statement loses much of its force when one realizes that the only enti on the local level which regulates this with an objective standar is Chicago. Noise regulation at the local level has generally been by the piecemeal enactment of certain restrictions in respon to particular community problems, instead of (as in the case of Chicago) broadly applicable legislation coming after an in-depth study of the noise problem of the municipality and a realization on the part of its citizens that some steps are necessary to lowe the general noise level of the community. However, as noise in urban America continues to escalate, more cities will arrive at the realization that the problem of noise must be met with widely applicable laws which apply intelligent standards in an effort to create quieter cities.

[1] See, for example, "Noise, The Problem" in The President's 1971 Environmental Program Emerging Problems, pt. 3, at 7; and comments by Senator Hart in Hearings on S. 3229, S. 3466, and S. 3546. Before the Subcommittee on Air and Water Pollution of the Senate Committee on Commerce, 91st Cong., 2d Sess. Air Pollution-1970. pt. 3, at 925.

[2] For example the discussion in Section 2.3.1, especially that concerning American Airlines, Inc., et al v. City of Audubon Park, Kentucky, at 2-28, infra.

[3] Pub. L. No. 91-604 (Dec. 31, 1970).

[4] Pub. L. No. 91-604, § 402(a)(Dec. 31, 1970).

[5] Pub. L. No. 91-604, § 402(c)(Dec. 31, 1970).

[6] Hearings on S. 3229, S. 3466, and S. 3546. Before the Subcommittee on Air and Water Pollution of the Senate Commission on Commerce, 91st Cong., 2d Sess., Air Pollution-1970, pt. 3, comments of Cochairman Magnuson at 889.

[7] 1970 CEQ Ann. Rep., Environmental Quality, at 130.

[8] President's 1971 Environmental Program at 7.

[9] 42 U.S.C. § 4331 (a) (Supp. V, 1970).

[10] 42 U.S.C. § 4331 (b) (Supp. V, 1970).

[11] 42 U.S.C. § 4332 (Supp. V, 1970).

[12] See for example the Hearings on Federal Agency Compliances with Section 102(2)(c) and Section 103 of the National Environmental Policy Act of 1969, before the Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries, 91st Cong., 2d Sess., Sec. 41, pts. 1 and 2 (1970); also see list of 102(2)(c) Statements as published in 102 Monitor by the CEQ.

[13] In the case of proposed areas the acoustical acceptability of the system plan is measured in terms of the Articulation Index (AI). The regulation defines this unit as, "A predictive measure of the intelligibility of speech in the presence of background noise." If the AI value is 0.0 then the background noise is just as loud as speech levels, while an AI value of 1.0 indicates that the background noise is 30 dB less than speech levels. Thus, as AI increases the relative acoustical supremacy of speech increases. For the new system plan the AI must be at least 0.3.

In areas where AI values only need to be 0.5 or less, the design can use the Speech Interference Level (SIL) for determining acceptability. This criterion is very much like the normal sound pressure level measured in decibels and in fact uses the same units. However, SIL measures just masking noise; only background noise is present when SIL measurements are taken. While the AI procedure does not provide a point of measurement, the SIL standard indicates that measurements are to be taken at certain relative distances and compared accordingly for purposes of determining acceptability. The SIL maxima for acceptability require that a normal voice level be adequate for effective communications. This means, in quantitative terms that, if communications must be intelligible over a distance of six feet, the maximum masking noise level permitted is 48 dB. If the communications distance is 12 feet the maximum permitted SIL is 43 dB; 18 feet corresponds to an SIL of 40 dB. (Note that the relationship is not linear over the whole range but is nearly so beyond six feet from the source).

A different unit, Noise Criterion (NC) is used for some special areas and for equipment to be installed in existing systems. NC relates sound pressure level in dB to the frequency of the sound. These curves look much like the SIL curves for voice communications. The permissable NC levels range from a high of NC-70 for mechanical areas where voice communication is only occasionally needed to a low of NC-30 for areas such as libraries where extreme quiet is necessary. In order to better understand the discussion, consider an NC value of a certain number of decibels as indicating the pressure level of a sound centered on a frequency of 2000 Hertz of any particular NC curve.

[14] 49 U.S.C. § 1653(a) (Supp.IV, 1969).

[15] DOT Order 1100.37, 9/2/69 and Office of Noise Abatement, DOT Order 1100.23 chg. 2, 5/8/68; and DOT Noise Abatement Committee.

[16] DOT Order 1100.23 Chg. 2, § 2(c), 5/8/68.

[17] 23 U.S.C. § 101(b) (1964).

[18] 23 U.S.C. § 134 (1964).

[19] Bureau of Public Roads, PPM 20-8 "Public Hearing and Location Approval" (Jan. 14, 1969).

[20] *Id.*, § 4(15) at 2.

[21] The CEQ authority to review activities of other Federal agencies is set form at 42 U.S.C. § 4344 (3) (Supp. 1971). The duties of all Federal agencies are set out at 42 U.S.C. § 4332 (Supp. 1970).

[22] Federal-Aid Highway Act of 1970, § 136, amending 23 U.S.C.§109(g), 84 Stat. 1713

[23] 23 U.S.C.A. §109(h) (Supp. 1971).

[24] 23 U.S.C.A. § 109(i) (Supp. 1971).

[25] An example of the efforts underway is *Interim Progress Report of Research Activity: Truck Tire Noise Investigation*, National Bureau of Standards Report 10 567, April, 1971.

[26] Harold Williams, Director of Civil Rights and Service Development, Urban Mass Transportation Administration, and member of DOT Task Force and Ad Hoc Committee, telephone interview 7/18/71.

[27] 49 U.S.C. § 1348(a) (Supp. IV, 1969). Navigable airspace is defined in the Federal Aviation Act of 1958 to mean:

> . . . airspace above the minimum altitudes of flight prescribed by regulations issued under this chapter, and shall include airspace needed to insure safety in take-off and landing of aircraft.

The minimum altitude of flight under the FAA regulations promulgated under this section is 1200 feet 14 C.F.R. 71.5(c)(1) . The navigable airspace also includes approach and takeoff airspace around the nation's airports covered by the Act (14 C.F.R. 91.13). FAA authority is extended by legislation to set air traffic rules governing the flight of aircraft:

> . . . for the navigation, protection, and identification of aircraft for the protection of persons and property on the ground, and for the efficient utilization of the airspace, including rules as to safe altitudes of flight and rules for the prevention of collision between aircraft and (other objects).

[28] 49 U.S.C. § 1653(a) (Supp.IV, 1969).

[29] Letter from Alan S. Boyd, Secretary of Transportation to Hon. Herbert Teyer, Member of Congress, House of Representatives appearing in Hearings on H.R. 3400, H.R. 14146 before the Subcommittee on Transportation and Aeronautics of the House Committee on Interstate and Foreign Commerce, 90th Cong. 1st and 2d Sess. at 19 (1968).

[30] Id. at 99.

[31] Such agreements are in effect at Washington's National Airport (WNA). Residents under the flight path to WNA have complained of violation of these agreements as well as curfew violation of these agreements as well as curfew violations for some years now. These complaints have crystalized recently into a lawsuit now pending in Federal court, Virginians for Dulles, et al v. Volpe, et al., Civil No. 507-70-A.

[32] Op. cit., Hearings on H.R. 3400 at 83.

[33] 49 U.S.C. § 1431 (Supp. IV, 1969).

[34] 49 U.S.C. § 1421(b) (Supp. IV, 1969).

[35] Id.

[36] 49 U.S.C. § 1423(a)(2) (Supp. IV, 1969).

[37] Id.

[38] 49 U.S.C. 1431(a)(2) (Supp. IV, 1969).

[39] 49 U.S.C. 1423(c) (Supp. IV, 1969).

[40] 49 U.S.C. § 1429 (Supp.IV, 1969).

[41] *Id*.

[42] 14 C.F.R. § 21.93(b)(1971).

[43] 14 C.F.R. § 36.1(c) (1971).

[44] 14 C.F.R. § C36.5 (1971).

[45] This special arrangement comes under 14 C.F.R. § 36.201(b)(1) (1971).

[46] Dr. John Powers, Acting Director, Office of Environmental Quality, F.A.A., telephone interview, August 1, 1971.

[47] Powers, John O., *The Federal Aviation Administration's Environmental Activities* at figure 9 (March, 1971).

[48] 49 U.S.C. § 1431(a) states, in part,

> ". . . the Administrator of the F.A.A. . . . shall prescribe and amend such rules and regulations . . . as necessary to provide for control and abatement of aircraft noise and sonic boom . . ."

[49] 35 Fed. Reg. 16980, col. 3 (Nov. 4, 1970).

[50] *Id*.

[51] *Id*.

[52] *Id*. at IV, 16981.

[53] *Id*. at IV(3), 16982.

[54] Statement of Clifton F. Von Kann, Senior Vice President, Operations and Airports, Air Transport Association of America in Hearings on S. 1566 and S. 1016 before the Subcommittee on Aviation of the Senate Committee on Commerce, 92d Cong., 1st Sess. at Attachment 2, page 2, July 13, 1971.

[55] Id., Table 1.

[56] 35 Fed. Reg. 12555 (Aug. 6, 1970).

[57] 35 Fed. Reg. 6189 (April 16, 1970).

[58] Proposed Federal Aviation Rule § 91.55(c) at 35 Fed. Reg. 6190 (April 16, 1970).

[59] Powers, FAA Environmental Activities at figure 9 (March, 1971).

[60] 49 U.S.C.A. § 1701, *et seq*. (Supp. 1971).

[61] Id. § 1712; "Airport system planning" is defined as,

> ". . . the development for planning purposes of information and guidance to determine the extent, type, nature, location, and timing of airport development needed in a specific area to establish a viable and balanced system of public airports. It includes identification of the specific aeronautical role of each airport within the system, development of estimates of system-wide costs, and the conduct of such studies, surveys, and other planning actions as may be necessary to determine the short-, intermediate-, and long-range aeronautical demands required to be met by a particular system of airports." §1711(5).

[62] Id. § 1712(b).

[63] Id. § 1712(f).

[64] Id. § 1712(h)(2)(A).

[65] Id. § 1713(a).

[66] Id. § 1716(a).

[67] Id. § 1716(c)(1)(A).

[68] Id. § 1716(c)(3).

69
The term Metropolitan area as used in the Act refers to a Standard Metropolitan Statistical Area, a term of art used by the Bureau of the Budget.

70
49 U.S.C. § 1716(c)(2) (Supp. 1971).

71
Id.

72
Id.

73
49 U.S.C. § 1716(c)(1) (Supp. 1971).

74
MIL-S-008806B (USAF).

75
Id. figs. 1-3 at 3,5.

76
AFM 86-5, TM 5-365, NAVDOCKS P-98 (10 Oct., 1964).

77
Id., point 2 at page 1.

78
Id.

79
A.F. Reg. 55-34, "Reducing Flight Disturbances that Cause Adverse Public Relations", (5 Feb., 1971).

80
Id., point 4 at page 3.

81
Id., points 4(3) and 5(1) and 5(2).

82
MIL-N-83155A (USAF),

"Noise Suppression System, Aircraft Turbine Engine Ground Run-up, General Specifications for," (25 March, 1970-amended 2 Sept., 1970).

83
Id., §§ 3.6.1.2, 3.6.1.3. at 6.

84
41 C.F.R. § 50-204.10(d)(1971).

[85] *Id.* § 50-204.10(b).

[86] *Id.* § 50-204.1(e).

[87] See discussion on this point at Section 3.1, page 3-10.

[88] 29 C.F.R. § 1518.52 now appearing at 36 Fed. Reg. 7348 (April 17, 1971).

[89] 29 U.S.C.A. § 651, *et seq.* (1971).

[90] *Id.*, § 651(b)(3).

[91] See the discussion at Section 2.3.1 at page 2-23, *infra.* Illustrative cases giving the breadth of the definition of a "business affecting interstate commerce include: *Wickard* v. *Filburn*, 317 U.S. 111, 87 L.Ed. 122, 63 S.Ct. 82 (1942) (wheat grown for own use in excess of market quota under Agricultural Adjustment Act); *United States* v. *Sullivan*, 332 U.S. 689, 92 L.Ed. 297, 68 S.Ct. 331 (1948) (local druggist reboxing pills shipped in from out of state); *Heart of Atlanta Motel, Inc.* v. *U.S.*, 379 U.S. 241, 13 L.Ed. 2d 258, 85 S.Ct. 348 (1964) (motel located near interstate highways which advertised nationally and has approximately 75% out-of-state clientele); *Katzenbach* v. *McClung*, 379 U.S. 294, 13 L.Ed. 2d 290, 85 S.Ct. 377 (1964) (restaurant purchasing 46% of meat from local suppliers who obtained same from out-of-state).

[92] 29 U.S.C.A. § 651 (1971).

[93] A "National Consensus Standard" is defined at § 652(9) as:

> . . . any occupational safety and health standard or modification thereof which (1), has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined by the Secretary that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption, (2) was formulated in a manner which afforded an opportunity for diverse views to be considered and (3) had

> been designated as such a standard by the Secretary, after consultation with other appropriate Federal agencies.

An "established Federal standard" at § 652(10) is:

> . . . any occupational safety and health standard established by any agency of the United States and presently in effect, or contained in any Act of Congress in force on December 29, 1970.

[94] 29 C.F.R. § 1910.95 now appearing at 36 Fed. Reg. 10518 (May 29, 1971).

[95] Penalties are discussed at 29 U.S.C.A. § 666 (1971).

[96] 29 U.S.C. §§ 660.661.

Note that a variance procedure also exists under § 662, but this procedure requires that the Secretary of Labor may only grant such variances and exemptions "to avoid serious impairment of the national defense." Further he must go on record as having granted such variance and must give notice of and afford the opportunity for a hearing. Variances may only last six months if affected employees are not notified and afforded hearing opportunity.

[97] 29 U.S.C.A. § 667(b) (1971).

[98] Id., § 667(c)(1)-(8).

[99] This has tended to slow development of any more meaningful standards by Federal agencies. It is only recently that some discussion of the necessity for stricter standards has been brought to the public forum. See generally "Noise Control," Hearings on H.R. 5275 and other bills before the Subcommittee on Public Health and Environment of the House Committee on Interstate and Foreign Commerce, 92d Cong., 1st Sess., Ser. 30 (1971).

[100] 30 U.S.C. § 846 (Supp. V, 1970).

[101] "Qualified person" is defined at 28 C.F.R. § 70-504-1 now appearing at 36 Fed. Reg. 12740 (July 7, 1971).

102 28 C.F.R. § 70.510(b)(1) at 36 Fed. Reg. 12740 (July 7, 1971).

103 36 Fed. Reg. 12739 (July 7, 1971).

104 28 C.F.R. § 70.510.

105 AEC 0550-01 OS (Feb. 25, 1970).

106 "Standards" is defined at AEC 0550-041 as:

> Standards include pertinent Federal, state and local laws, codes, regulations, specialized guides, manuals, and other issuances sponsored by various Government agencies, industrial organizations, technical associations, and other groups.

107 AEC 0550-051 and 0550-054.

108 AEC 0550-034c

109 AEC 0550-034e

110 See discussions of these regulations, *supra*. at 1-28 and 1-14.

111 AFR 160-3 (29 Oct., 1956) as amended, AFR 160-3A (27 June, 1960), and AFR 160-3B (7 Feb., 1967).

112 AFR 160-3B, 1.3c(1).

113 BUMEDINST 6260.6B (5 Mar., 1970).
NAVAIRINST 6260.1 (24 Feb., 1971).
OPNAVINST 5100.14 (11 August, 1970)

114 OPNAVINST 5100.14, Ch. 3-2a.

115 BUMEDINST , pt. 3.

116 *Id.*, § 3d; this section has been implemented by BuMedNote 6260, 732:SHB:al; (28 April, 1971).

[117] This regulation applies to all Naval Air Systems Command Headquarters field activities.

[118] NAVAIRINST 6260.1, § 5.b.(4) (24 Feb., 1971).

[119] 40 U.S.C. § 333(a) (Supp.V, 1970).

[120] 36 Fed. Reg. 7340 (April 17, 1971).

[121] Contract GSA-Washington, D.C. 71-8378, "United States Courthouse and Federal Office Building, Philadelphia, Pennsylvania", Cl. 35.6 at 2-14.

[122] Corps of Engineers, CE-1300 point 1 at i (May, 1970).

[123] *Id.*, point 5 at ii.

[124] *Id.*, point 9 at vi.

[125] *Id.* at 1.

[126] Contractors must see that subcontractors carry forth the specifications or the contractors will be liable to action by the Contracting Officer for non-compliance.

[127] Corps of Engineer, U.S. Army, EM 385-1-1, *Safety: General Requirements*, § 32 "Noise Control" at 127 (1 Nov., 1967).

[128] *Id.*, § 32.A.02 and .03 at 128.

[129] CE-1300, para _ _-5 at 2.

[130] ETL 1110-3-141 (30 Nov., 1970).

131
F.H.A. Manual, Vol. VII, Book 1, Underwriting - Home Mortgages, § 71453.

132
Id., §§ 71453.5 and .6.

133
F.H.A. #2600, Minimum Property Standards for Multifamily Housing, § M405 (Feb. 1971).

134
Id.Statement of Purpose at 1

135
Id., § M201 at 26.

136
Berendt, Winger, and Burroughs, A Guide to Airborne, Impact, and Structure Borne Noise - Control in Multifamily Dwellings, at 10-5 (Sept. 1967).

137
F.H.A. #2600, op. cit., § M405-2.4 at 87.

138
"Partition" includes walls separating living units from public and service spaces but does not include exterior walls. See Table 4-6 at n.7.

139
F.H.A. #2600, Table 4-6 at 89.

140
Berendt, et.al., op. cit. at 10-8.

141
F.H.A. #2600, Table 4-7 at 90.

142
H.U.D. Circular 1390.2, § 2, "Policy" (July 16, 1971).

143
Id., § 2(4) at 2.

144
Id., § 2(1-3) at 2.

145
Id., § 4.b.(1) at 7, 8.

146
Id., § 4.b.(2)at 9. Note that no specific measuring point within the house or on the site is set for either the interior or exterior standards. Lamentably, this is all too often true of noise abatement laws at all governmental levels.

147
Id., § 4.b.(3) at 9.

148
G.S.A. Handbook; PBS P 3410.5 Chge 1, "Architectural Criteria" (Sept. 2, 1969), and PBS P 3460.1C "Mechanical and Electrical Engineering.

149
Public Building Service: Guide Specifications, PBS 4-0950 "Acoustical Ceiling Systems", (May, 1968), PBS 4-1031 "Relocatable Partition Systems" (as amended, Feb., 1968), and PBS 4-515-71 "Vibration Insulation" (April, 1970).

150
G.S.A. Handbook PBS P 3460.1C, Ch. 2-41 at 24

151
PBS -4-515-71, point 4 at 1515-3 (April, 1970).

152
Id. at 1515-4.

153
15 U.S.C. § 717, *et seq.* (1963); regulations appearing at 18 C.F.R. § 2.69 (1971).

154
18 C.F.R. § 2.69(a)(3)(iii) (1971).

155
H.R. 5275, 92d Cong., 1st Sess., § 6(d)(2).

156
41 U.S.C. § 35(e) (1966).

157
41 C.F.R. § 50-204.1(e) (1971).

158
Cal. Gen. Laws Ann., ch. 1433 §§21000-21150 (Deering 1970).

159
Id. ch. 1534.

[160] *Id.* ch. 1533.

[161] *Id.*

[162] Ch. 87 §§ 1-3 [1970] Colo. Laws 360-361.

[163] Colo. Rev. Stat § 66-35-1 to 66-35-8 (Senate Bill No. 197, 1971).

[164] *Id.* § 66-35-3.

[165] *Id.* § 66-35-3(4).

[166] *Id.* § 66-35-8.

[167] Ch. 71-36, § 1-3, [1971] Fla. Laws 85.

[168] Act 147, [1970] Hawaii Laws 271.

[169] *Id.* 271-272.

[170] Letter from Dr. Walter B. Quisenberry, Director of Health, State of Hawaii to Robert C. Ware, July 7, 1971.

[171] Hawaii Rev. Laws § 267-1 (1955).

[172] Ill. Ann. Stat. ch. 111½ § 1001 et seq. (Supp. 1970).

[173] Ch. 140, § et seq., [1970] N. Y. Laws 185-213 (McKinney 1970). (Noise was added to the list of air pollutants by Act of February 3, 1971).

[174] Ch. 140, § 15(7), [1970] N. Y. Laws 191 (McKinney 1970). The lack of a provision concerning search warrants presents a fourth amendment question on the validity of the section.

[175] Ch. 140, § 1 et seq. [1970] N. Y. Laws 185-213 (McKinney 1970).

176
N. D. Cent. Code § 23-01-17 (House Bill No. 1436, 1971).

177
Penn. Stat. Ann. tit. 71, § 510-17 (1970).

178
Cal. Pub. Util. Code § 21669 et seq. (Deering 1970).

179
Interview with Joseph Crotti, Director of Aeronautics, State of California and Nicolas Yost, Deputy Attorney-General of California. The regulations appear in Cal. Business Reg., tit 4, subch. 6.

180
The SENEL limit in the regulations was determined by adding five decibels to the normal noise emission of the heaviest aircraft of types given.

181
Cal. Pub. Util. Code § 21669.4 (Deering 1970).

182
Cal. Business Regulations tit. 4 § 5075(4).

183
Id. § 5075(6).

184
At least one California official believes the regulations will have to be eased for Los Angeles International Airport and possibly others during the first time period. (Interview with Richard G. Dyer, Assistant Engineer, Department of Aeronautics, State of California, in Sacremento, California, on August 4, 1971.)

185
Orange County Airport in California has already taken steps to lower aircraft noise. The airport has set up monitoring devices and informs airlines if pilots have been noisy on takeoffs. Through the use of changes in short-term leases, the airport has restricted the number of flights and set a curfew. (Letter from Robert J. Bresnahan, Director of Aviation, Orange County, to Robert C. Ware, August 17, 1971.)

186
Minn. Stat. Ann. § 360.063 (1966).

187
Conn. Gen. Stat. Ann. § 14-80 (1958).
Ky. Rev. Stat. § 189.020 (1962).
Mass. Ann. Laws ch 90, § 16. (Supp. 1968).
Mo. Rev. Stat. § 304.560 (1959).
Ore. Rev. Stat. § 483.448(3)(1969).

188
Ky. Rev. Stat. § 189.140 (1962).
Mo. Rev. Stat. § 304.560 (1959).
Ore. Rev. Stat. § 483.448 (1969).

189
Conn. Laws of 1971, Public Act No. 762, § 3.

190
Conn. Laws of 1971, Pub. Act No. 762.

191
N. Y. Veh. and Traf. Law § 386 (McKinney, 1970).

192
Id. § 375(31).

193
Idaho Code Ann., § 49-835 (1971). (Letter from Jack Farley, Director, Motor Vehicle Division.)

194
Cal. Vehicle Code § 23130 (Deering 1971).

195
Id.

196
Id. § 21760 (In the original Act, standards for new automobiles were stricter than those for operation. An amendment changed the operational levels. There is legislation pending which would raise the standards for new cars.)

197
Cal. Vehicle Code § 23130(c).

198
Colo. Rev. Stat. Ann. § 66-35-1 et seq. (Senate Bill No. 197.)

199
Id. § 66-35-8.

200
Ch. 563, § 1, [1971] Minn. Acts 870.

201
Ill. Ann. Stat. ch. 95½ § 12-121(b) (Supp. 1970). Most states which define mufflers, do so in terms of baffle plates, not turbine wheels. For a discussion of the proper state definition of mufflers see Kolb, Richard G, "Vehicle Noise and State Regulations," Heavy Duty Truck Manufacturers Association Newsletter, (Washington, D.C. July 28, 1971).

202
Ala. Code tit. 36 , § 39 (1958).

203
Penn Stat. Ann. tit. 75, § 828 (1959).

204
Tex. Pen. Code Art. 797 (1948).

205
Wis. Stat. Ann. § 22.40 (11), (12) (West 1970).

206
Id. § 347.39 (1958).

207
Colo. Rev. Stat. Ann. § 13-5-105 (1963).
Ill. Ann. Stat. ch. 95½, § 12-121 (1958).
La. Rev. Stat. § 32:352 (1950).
Me. Rev. Stat. Ann. tit 29, § 1364 (1964).
N. H. Rev. Stat. Ann. § 263:46 (1966).
N. Y. Veh. & Traf. Law § 375(31) (McKinney 1970).
Okla. Stat. tit 47, § 12-402 (1961).
Penn. Stat. Ann. tit. 75,§ 828 (1959).
Wis. Stat. Ann. § 347.39 (1958).

208
Va. Code Ann. § 46.1-301 (1958).

209
Md. Ann. Code art 66½, § 11-1409 (1957).

210
Ga. Code Ann. § 68-1717 (1967).

211
Vt. Stat. Ann. tit 23, § 1097 (1967).

212
Nev. Rev. Stat. § 486.100 (1967).

213
Mich. Comp. Laws § 9.2407.
N. Y. Veh. and Traf. Law § 381 (McKinney 1970).

214
Hawaii Rev. Laws § 311-24 (1955).

215
V. I. Code Ann. tit 20, § 465 (1964).

216
Penn. Stat. Ann. tit 75, § 828 (1959).

[217] Cal. Vehicle Code § 23130 (Deering 1971).

[218] A motor-driven cycle is generally defined as a two-wheeled vehicle with a motor which produces less than 15 horsepower.

[219] Although no enforcement procedures are specified in the law, the California Highway Patrol has developed methods for the measurements of motorcycle noise. These are described in Motorcycle Noise Test Procedure Evaluation, California Highway Patrol, January, 1971.

[220] Colo. Rev. Stat. Ann. § 66-35-7 (Senate Bill No. 197).

[221] *Id*. § 66-35-6.

[222] *Id*. § 66-35-8.

[223] Ch. 563, § 1 [1971] Minn. Acts 870.

[224] Ill. Ann. Stat. § 314-3 (1958).

[225] Kan. Stat. Ann. § 82a-809 (1963).

[226] Neb. Rev. Stat. § 81-815.09 (Supp. 1959).

[227] Penn. Stat. Ann. tit 55, §§ 411, 485f (1959).

[228] Wis. Stat. Ann. § 60.29 (35) (1964).

[229] *Id*. § 350-10 (Supp. 1970).

[230] Me. Rev. Stat. tit. 12, §§ 1978, 1984 ("Maine Snowmobile Law," State Park and Recreation Commission).

[231] Ch. 90B, § 24, [1970] Mass. Gen. Laws 274.

232
N. Y. Conservation Law § 8-0305 (1971).

233
Mont. Laws 1971 (Senate Bill 54).

234
Colo. Rev. Stat. Ann. §§ 66-35-6, 66-35-7 (Senate Bill No. 197). This Snowmobile operation provision is included in the law governing operational noise from other vehicles. This accounts for the measurements being dependent on speed limits. Although it is doubtful that there is a speed limit everywhere any snowmobile may go, this is the way the law is written.

235
Ala. Code tit. 36, § 36 (1958).
Ariz. Rev. Stat. Ann. § 28-954 (1956).
Ark. Stat. Ann. § 75-725 (1947).
Colo. Rev. Stat. Ann. § 13-5-104 (1963).
Ga. Code Ann. § 68-1716 (1967).
Kan. Stat. Ann. § 8-5, 102 (1963).
Me. Rev. Stat. tit 29, § 1362 (1964).
Mich. Comp. Laws § 9.2406 (Supp. 1970).
Md. Ann. Code art. 66½, § 12-401 (Supp. 1970).
Mo. Rev. Stat. § 304.560 (1959).
Ore. Rev. Stat. § 483.446 (1969).
S.D. Comp. Laws Ann. § 32-15-10 (1967).
Tenn. Code Ann. § 59-901(a) (1955).
Tex. Pen. Code art 796 (1948).
Wyo. Stat. Ann. § 31-204 (1967).

236
Tex. Pen. Code art 796 (1948).

237
Ala. Code tit. 36, § 36 (1958).

238
Tex. Pen. Code art 796 (1948).

239
Minn. Stat. Ann. § 360.075 (1970).

240
Md. Ann. Code art. 66½, § 12-401.1 (1957).

241
N. J. Stat. Ann. § 39:4-78 (1937).

242
Miss. Code Ann. § 3374-124 (1956).

243
Nev. Rev. Stat. § 266.360 (1967).

244
N. J. Stat. Ann. § 40:175-10 (1937).

245
Del. Code Ann. tit 4, §§ 543, 561 (1953).

246
Tex. Code art 666-12 (1948).

247
N. Y. Multiple Dwelling Law § 84 (McKinney 1968).

248
Act 146 § 103 [1970] Hawaii Acts 270.

249
Iowa Code § 138.13(b) (Supp. 1970).

250
Ch. 1298, § 216 [1970] Cal. Stats.

251
Colorado--Rules and Regulations pertaining to Occupational Health § OH 2.10.

Delaware--Letter from Franklin B. Drumheller, Director, Department of Labor, State of Delaware, to Hon. James Hodgson, Secretary of Labor, April 14, 1971.

Idaho--Minimum Safety Standards and Practices for Sawmill, Woodworking and Allied Industries, ch. 1, § 7.8.

Kansas--Letter from Robert J. Borchardt, Director, Industrial Safety Division, Department of Labor, State of Kansas to Mr. Darrell D. Carlton, Commissioner of Labor, State of Kansas, April 6, 1971 on file in Office of State Programs, Occupational Safety and Health Administration, Washington, D.C.

Kentucky--State Board of Health Regulation OH 1 (4).

Maine--Department of Labor and Industry, Rules and Regulations Relating to Occupational Health and Sanitary Standards § 16.

Michigan--Department of Public Health, Division of Occupational Labor, Occupational Air Contaminant and Physical Agents R 325.2421-325.2424.

Mississippi--State Board of Health Regulations.

New Jersey--N.J.A.C. 12:173.

Norht Carolina--State Board of Health Regulations.

Pennsylvania--Department of Environmental Resources Occupational Health and Safety Standards §§ 201.81 et seq.

Tennessee--Letter from Winfield Dunn, Governor, to Hon. James Hodgson, Secretary of Labor, April 21, 1971.

Washington--Department of Labor and Industries, Division of Safety Regulations.

West Virginia--Occupational and Industrial Health Regulations Ch. 5, Art. 1.

252
California--Division of Industrial Safety, General Industry Safety Orders Group 6.1, art. 55.
Oregon--Workmen's Compensation Board, Oregon Safety Code for Places of Employment § 22-018.
Utah--Industrial Commission Regulations § 28.

253
Hawaii Public Health Regulations ch. 24, § 13 requires that the noise level to which workers can be continually or with regular frequency subjected cannot be greater than 90 dB.
Arizona has adopted ANSI standards Z24-X-2.
The Virginia Bureau of Industrial Hygiene requires that hearing conservation measures be initiated if the noise exceeds an average of 85 dB in the ranges of 300-600, 600-1200 and 1200-2400 Hz.
The rules of the Wisconsin Industrial Commission § 1.82 require ear protective devices if the noise exceeds 100 dBC for a major portion of the day or 120 dBC at any time.

254
Florida Department of Commerce, Bureau of Workmen's Compensation, Regulations for Control and Prevention of Occupational Diseases § 1855-1.11.
New Mexico Department of Public Health, Regulations Governing the Sanitation of Places of Employment § K.

255
Alaska Stat. § 11.45.030.
Cal. Code tit 11, § 415 (West 1960).
Kan. Stat. Ann. § 21-950 (1963).
La. Rev. Stat. § 14:103 (1950).
Me. Rev. Stat. Ann. tit. 20, § 3771 (1964).
Mass. Ann. Laws ch 272, § 41 (Supp. 1968).
Mo. Rev. Stat. § 562.240 (1959).
Ohio Rev. Code Ann. § 2923.41 (1965).
R.I. Gen. Laws Ann. §§ 12-2-4, 12-2-5 (1968).
Tenn. Code Ann. §§ 39-1204, 39-1213 (1955).
Vt. Stat. Ann. tit. 13, §§ 1022-1023, 1051 (1967).
Wis. Stat. Ann. § 947.01 (1958).
Wyo. Stat. Ann. §§ 6-112, 6-114, 6-173.

256
V. I. Code Ann. tit 14, §§ 622, 624.

257
Conn. Gen. Stat. Ann. § 7-194 (1958).
Ill. Ann. Stat. § 11-5-2 (1958).
Iowa Code § 368.7 (1966).
Ky. Rev. Stat. §§ 82.220, 85.180 (1962).
Mich. Comp. Laws § 5.1740 (1948).
Minn. Stat. Ann. § 412.191 (1958).
Penn. Stat. Ann. tit. 53, § 46202 (20) (1959).

258
Wash. Rev. Code §§ 35.22.280(36), 35.23.440(10).

259
In each of these cases, the state law regulating disturbance of the peace is given first, followed by the law granting to localities the power to regulate it.

Miss. Code Ann., tit. 11, § 2088, 2090-5 (1956); tit. 16, § 3374-124.

Neb. Rev. Stat. § 32-466 (1968); §§ 14-102, 16-227, 16-228, 17-556.

N.Y. Pen. Law §§ 240.20, 240.21 (McKinney 1970); Town Law § 130.

Okla. Stat. tit. 21, § 1321.8 (1961); tit. 11, § 655.

Tex. Pen. Code tit 9, art. 281, 451, 465, 474 (1948); tit. 28, art. 1015.

Utah Code Ann. §§ 76-52-9, 76-55-3, (1953); 3310-8-47, 10-8-50.

Wash. Rev. Code §§ 9.76.010, 9.76050 (1967); §§ 35.22.280(36), 35.23.440(10).

260
R. I. Gen. Laws Ann. §§ 12-2-4, 12-2-5 (1968).

261
Me. Rev. Stat. Ann. tit. 20, § 3771 (1964).

262
V. I. Code Ann. tit. 14, § 624(2)(1964).

263
Tenn. Code Ann. § 39-1213 (1955);
Tex. Pen. Code tit. 9, art. 451 (1948);
La. Rev. Stat. § 14:103 (1950);
Miss. Code Ann., tit. 11, § 2090.5 (1956).

264
Penn. Stat. Ann. tit 34, § 1311.704 (g) (1959).

Minnesota has a wildlife region within the state regulated so as to maintain an untouched sanctuary. Many noise sources are restricted from entering this area so as to create disturbing noise.

265
Colorado, Connecticut, Florida, Idaho, Maine, Minnesota, Montana, New York and North Dakota have enacted some regulations on noise in 1971.

266
Colorado, Illinois and New York are examples of states which have taken this action.

267
Port of New York Authority, "Terms and Conditions for the Operation of Jet Aircraft." For takeoffs, these conditions are indentical for each airport.

268
Port of New York Authority, "Terms and Conditions for the Operation of Jet Aircraft, Kennedy International Airport," (1).

269
Port of New York Authority Airport Rules and Regulations, § 330/0-02.

270
Id. § 320/0-06.

271
Letter from Dan E. Sweat, Jr., Chief Administrative Officer, Office of the Mayor, Atlanta, Georgia, to John J. Zimmerman, June 18, 1971.

272
Letter from Merle F. Goff, City Manager, Bangor, Maine, to John J. Zimmerman, June 21, 1971.

273
Letter from Floyd Holland, Major, Cheyenne, Wyoming, to John J. Zimmerman, June 21, 1971.

274
Letter from Robert W. Rank, City Manager, Durango, Colorado to John J. Zimmerman, June 21, 1971.

275
Letter from Dan Rock, Manager, Evergreen Area Chamber of Commerce, Evergreen, Colorado, to John J. Zimmerman, June 22, 1971.

276
Letter from Harvey M. Pose, Assistant to City Manager, Grand Junction, Colorado, to John J. Zimmerman, June 22, 1971.

277
Letter from Nathaniel Felzer, Deputy Corporation Counsel, Honolulu, Hawaii, to John J. Zimmerman, June 23, 1971.

278
Letter from Bryce Brasel, Administrative Assistant to the Mayor, Omaha, Nebraska, to John J. Zimmerman, July 23, 1971.

279
Letter from Dr. Frank B. Clark, Director, Allegheny County Health Department, Pittsburgh, Pennsylvania, to John J. Zimmerman, June 24, 1971.

280
Letter from William M. Johnstone, Town Clerk, Stowe, Vermont, to John J. Zimmerman. Stowe, a major eastern ski resort is unincorporated. However, it does have a zoning ordinance which does not mention noise.

281
Letter from James H. Norton, Air Pollution Control Officer, Columbia, South Carolina, to John J. Zimmerman, July 20, 1971.

282
Letter from Vincent DiMase, Department of Building Inspection Providence, Rhode Island, to John J. Zimmerman, July 21, 1971.

283
The National Institute of Municipal Law Officers has also drafted a model ordinance which includes decibel limits on noise However, this model has been enacted much less frequently on the local level than the subjective ordinance.

284
The summary of local laws at the end of this section provides citations for the Nimlo-type ordinances in each locality surveye

285
El Paso, Tex., City Code § 12-52.

286
Portland, Ore., City Ordinances §§ 14.52.030.

287
Norfolk, Va., City Code § 31-48.

288
Manchester, N. H., City Noise Ordinance § 4.

289
Killeen, Tex., City Code ch. 7, art. 9, § 3.

290
Indianapolis, Ind., City Ordinances § 10-303.

291
Beverly Hills, Cal., Municipal Code tit. 4, ch. 8, art. 1.

292
Boston, Mass., Revised City Ordinances ch. 29.

293
Pocatello, Idaho, Ordinance No. 1642.

294
Aspen, Colo., City Code § 6-1-48.

295
Boulder, Colo., Revised Code § 21-61.

296
The validity of these laws is questionable as a result of the new Colorado noise law described in 1.2.

297
Scranton, Pa., (General Offenses Code §§ 733.01-733.05, 733.99) has such a law. It establishes different classes of nuisances and provides penalties for each class. Various noise sources can be found in three different classes. Wichita, Kan., also has such a law (City Code § 710.040), as does Decatur, Ill. (City Code ch. 47).

298
Detroit, Mich., City Code § 39-1-40; Minneapolis, Minn., Code of Ordinances § 609.74; Sioux Falls, S.D., City Ordinances § 9.1001.

299
Portland, Ore. (Portland, Ore., Zoning Ordinance), and Sioux Falls, S. D. (Sioux Falls, S. D., Zoning Ordinance) allow uses not objectionable due to noise. Richmond, Va. (City Code art. 17, § 42-54) allows certain industries in its light industrial districts if they create no more noise than other uses. Ogden, Utah (Revised Ordinance Book § 29-16-1(w)., prohibits certain noisy uses in certain zones.

300
Those cities which appear to apply decibel limits to any activity include:
Binghamton, N. Y. (Zoning Ordinance § 609),
Denver, Colo. (Zoning Ordinance § 13-2(2)),
Jacksonville, Fla. (Zoning Regulations § 708.423),
Minneapolis, Minn. (Code of Ordinances § 240.030),
Rochester, Minn. (Zoning Ordinance § 40.052).
Those cities which apply decibel limits only to industrial or commercial noise sources include:
Chicago, Ill. (Municipal Code §§ 17-4.9 to 17-4.14),
Dallas, Tex. (Comprehensive Zoning Ordinance, § 10-420),
Juneau, Alas. (Zoning Ordinance),
Las Vegas, Nev. (Zoning Regulations §§ 11-1-22, 11-1-23),
Washington, D. C. (Zoning Ordinance §§ 6101.51, 6102.51).

301
Dallas, Tex., Comprehensive Zoning Ordinance § 10-420.

302
Binghamton, N. Y., Zoning Ordinance § 609.

303
Denver, Colo., Municipal Code § 372.1-10.

304
Salt Lake City, Utah, Revised Ordinances § 2-12-3.

305
Scottsbluff, Neb., City Ordinances 31-201.

306
Park Ridge, Ill., City Ordinances §§ 4-8-1 to 4-8-3.

307
Santa Barbara, Cal., Municipal Code § 18.08.200.

308
Portland, Ore., City Ordinances § 33.78.040.

309
Beverly Hills, Cal., Municipal Code 34-8.402;
Decatur, Ill., City Code ch. 30, § 88;
Detroit, Mich, City Code § 38-10-10;
Little Rock, Ark., City Ordinances art XIV, § 39-126;
Minneapolis, Minn., Traffic Code § 414.070;
Philadelphia, Pa., Code of Ordinances § 10-406;
Portland, Ore., City Ordinances § 16.28.290;
Richmond, Va., City Code § 25-30;
Salt Lake City, Utah, Revised Ordinances art. 9, § 247;
Seattle, Wash., City Ordinances § 12.82.050;
Sioux Falls, S.D., City Ordinances, Traffic Code § 13.131;
Washington, D. C., Traffic and Motor Vehicle Regulations § 153(e).

310
Salt Lake City, Utah, Revised Ordinances art. 9, § 247.

311
Id. § 250.

312
Beverly Hills, Cal., Municipal Code §4-8.401.

313
Id. § 4-8.402.

314
Id. § 4-8.104.

315
Ann Arbor, Mich., City Code § 9:14.

316
Pocatello, Idaho, Ordinance No. 1642 § 3.

317
Cincinnati, Ohio, Code of Ordinances § 511-2.

318
Pocatello, Idaho, Ordinance No. 1642 § 4.

319
Chicago, Ill., Municipal Code § 17-4.7;
Minneapolis, Minn., Code of Ordinances, § 240.060.

320
Chicago, Ill., Municipal Code § 17-4.7.
Minneapolis, Minn., Code of Ordinances § 240.060.

321
Chicago, Ill., Municipal Code § 17-4.31.

322
Billings, Mont., Code of Ordinances § 21-1-178;
Birmingham, Ala., City Code § 34-146;
Bismarck, N. D., Revised City Ordinances § 10.1109;
Chicago, Ill., Municipal Code § 27-353;
Cleveland, Ohio, Penal Code § 13.1123;
Decatur, Ill., City Code ch. 30.391;
Denver, Colo., City Code § 507.6;
Des Moines, Iowa, City Code § 30-1733;
Detroit, Mich, City Code § 38-10-10;
Flagstaff, Ariz., City Code § 6-1-42;
Helena, Mont., City Ordinances § 10-13-34;
Kansas City, Kan., City Code § 23-50;
Killeen, Tex., City Code ch. 13, art. 1, § 54;
Little Rock, Ark., City Ordinances art. XIV, § 39-126;
Memphis, Tenn., City Code §§ 23-116, 23-117;
Milwaukee, Wis., City Code § 101-283;
Minneapolis, Minn. Traffic Code § 417.360;
Missoula, Mont., City Ordinances § 20-22;
Nashville, Tenn., City Code § 27-1-71;
Norfolk, Va., City Code § 29-777;
Philadelphia, Pa., Code of Ordinances § 10-406;
Portland, Ore., City Ordinances § 16.28.290;
Scottsbluff, Neb., City Ordinances § 13-118.
Sioux Falls, S. D., Traffic Code § 13.131;
Wichita, Kan., Traffic Code § 11.60.240.

323
Ann Arbor, Mich., City Code § 9:14;
Cincinnati, Ohio, Code of Ordinances § 511-16;
Madison, Wis., City Ordinances § 12.115 (2);
Ogden, Utah, Revised Ordinance Book § 14-18-17;
Pocatello, Idaho, Ordinance No. 1642 § 3;
Salt Lake City, Utah, Revised Ordinances art. 9, § 172;
Washington, D. C., Traffic and Motor Vehicle Regulations § 144.

324
Madison, Wis., City Ordinances § 12.115(2).

325
Richmond, Va., City Code § 25-222.

326
Salt Lake City, Utah, Revised Ordinances art. 9 § 248.

327
Decatur, Ill., City Code ch. 30, § 91.

328
Cleveland, Ohio, Penal Code § 13.1123.

329
Missoula, Mont., City Ordinances § 20-14.1.

330
Detroit, Mich., City Code §§ 38-6-20 to 38-6-26.

331
A motor-driven cycle is generally defined as a two-wheeled vehicle with a motor which produces less than fifteen horsepower.

332
Chicago, Ill., Municipal Code § 17-4.7.

333
Minneapolis, Minn., Code of Ordinances § 240.060.

334
Chicago, Ill., Municipal Code § 17-4.31.

335
Birmingham, Ala. City Code § 35-10(d);
Buffalo, N.Y., City Ordinances ch. XXV, § 1701;
Cleveland, Ohio, Penal Code § 13.1114;
Dallas, Tex., City Code § 30-4;
Decatur, Ill., City Code ch. 66, § 23;
Des Moines, Iowa, City Code § 32-31;
Fort Lauderdale, Fla., Code of Ordinances § 28-35;
Hartford, Conn., City Code § 21-1;
Houston, Tex., City Code § 29-12;
Indianapolis, Ind., City Ordinances § 10-302;
Las Vegas, Nev., City Code § 6-1-24;
Manchester, N.H., City Noise Ordinance § 3(7);
Miami Beach, Fla., City Code § 24-2;
Milwaukee, Wis., City Code § 8-80(4)(b);
Oklahoma City, Okla., City Ordinances § 9.3.11;
Phoenix, Ariz., City Code § 23-14;
Portland, Ore., City Ordinances § 14.52.040;
Richmond, Va., City Code § 26-1;
Washington, D.C., Police Regulations art. 29, § 14.

Portland, Ore., allows underwater exhausts as an alternative to mufflers. Decatur, Ill., provides a penalty of a fine of at least $5.00 but not more than $200.00 for each offense.

336
Chicago, Ill., Municipal Code §§ 17-4.21, 17-4.31.

337
Id. §§ 17-4.22, 17-4.31.

338
Dillon, Colo., Snowmobile Ordinance.

339
Ann Arbor, Mich., City Code § 9:14;
Birmingham, Ala., City Code § 34-143;
Bismark, N. D., Revised City Ordinances § 10.1105;
Chicago, Ill., Municipal Code § 17-4.20;
Decatur, Ill., City Code ch. 30, § 89;
Des Moines, Iowa, City Code § 30-1730;
Detroit, Mich., City Code § 38-10-6;
Little Rock, Ark., City Ordinances art XIV, § 39-126;
Madison, Wis., Vehicle Code § 12.115 (1);
Memphis, Tenn., City Code § 23-118;
Milwaukee, Wis., City Code § 101-282;
Minneapolis, Minn., Code of Ordinances § 875.020;
Nashville, Tenn., City Code § 27-1-70;
New York, N. Y., Traffic Regulations § 151;
Oklahoma City, Okla., City Ordinances § 9.3.03 (this law applies only between 10 PM and 7 AM);
Philadelphia, Pa., Code of Ordinances § 10-406;
Portland, Ore., City Ordinances § 16.28.260;
Richmond, Va., City Code §§ 25-202, 25-203;
Salt Lake City, Utah, Revised Ordinances art. 9, § 249;
Seattle, Wash., City Ordinances § 12.82.030;
Washington, D. C., Traffic and Motor Vehicle Regulations § 143;
Wichita, Kan., Traffic Code § 11.60.230.

Dallas, Tex., (Criminal and Civil Code § 30-5), does not require horns on vehicles but does restrict the use of bells, sirens and exhaust whistiles to emergency vehicles.

340
San Francisco, Calif., Police Code ch. VIII, § 94.

341
Des Moines, Iowa,City Code § 30-159.

342
Chicago, Ill., Municipal Code § 17-4.31.

343
Seattle, Wash., City Ordinances § 12.82.170.

344
Decatur, Ill., City Code ch. 62 § 28.

345
Chicago, Ill., Municipal Code § 188-44 (Chicago sets a penalty of $10-$200 in Id. § 188-52.);
Des Moines, Iowa, City Code § 45-3;
Detroit, Mich., City Code § 39-1-74;
Madison, Wis., City Ordinances § 24.05. (Madison sets a penalty of $25-$100 in Id. § 24.20.).
Jacksonville, Fla., restricts locomotive whistles after 10 P.M. (Jacksonville, Fla., Ordinance Code § 324.105).

346
Beverly Hills, Cal., Municipal Code § 4-8.601.

347
Detroit, Mich., City Code § 39-1-73.

348
Portland, Ore., City Ordinances § 19.16.215.

349
Nimlo Model Ordinance Prohibiting Unnecessary Noises (14).

350
Richmond, Va., City Code § 25-30.

351
Portland, Ore., City Ordinances § 14.52.060.

352
Chicago, Ill., Municipal Code § 17-4.7.

353
Nashville, Tenn., City Code § 29-1-53.
Madison, Wis., (City Ordinances § 24.04(5)), has a similar provision prohibiting the parking of vehicles with animals in them.

354
Madison, Wis., City Ordinances § 24.04.
Santa Barbara, Cal., Municipal Code § 9.16.010.

355
Decatur, Ill., City Code ch. 47, § 10.
Jacksonville, Fla., Ordinance Code § 324.104.
Milwuakee, Wis., City Code § 80-26.
Decatur provides a penalty of a fine of $5 to $200 for each violation.

356
Salt Lake City, Utah, Revised Ordinances § 20-31-3.

357
Flagstaff, Ariz., City Code § 6-1-39.
Cleveland, Ohio, Penal Code § 13.1118.

358 Cleveland, Ohio, Penal Code § 13.1118.

359 Chicago, Ill., Municipal Code §§ 150-23, 150-25.

360 *Id*. § 150-15.

361 Houston, Tex., City Code § 23-10

362 Washington, D. C., Police Regulations art 6, § 4.

363 Fort Lauderdale, Fla., Code of Ordinances § 28-33.

364 Decatur, Ill., City Code ch 54.1, § 2.

365 Detroit, Mich., City Code § 39-1-90.2.

366 Birmingham, Ala., City Code § 26-9.

367 Houston, Tex., City Code § 14-14.

368 Killeen, Tex., City Code ch. 3, art. 7, § 1.

369 *Id*.

370 Cleveland, Ohio, Penal Code § 13.1110.

371 *Id*.

372 St. Louis, Mo., Ordinance No. 54719.

373 Cleveland, Ohio, Penal Code §13.1112.

374 Chicago, Ill., Municipal Code § 150-45.

375 Decatur, Ill., City Code ch. 54.1, § 2.

376
Nimlo Model Ordinance Prohibiting Unnecessary Noises (6), (7), (9), (17).

377
Chicago, Ill., Municipal Code § 17-4.4.
Detroit, Mich., City Code § 39-1-75.
New Orleans, La., City Code § 42-43.
Seattle, Wash,, City Ordinances § 12.82.070.

378
Nashville, Tenn., City Code § 29-1-60.
Seattle, Wash., City Ordinances § 12.82.040.

379
University Heights, Ohio, General Building Code ch 1613.
Miami Beach, Fla., City Code § 24-2(n).
New Haven, Conn., City Code of Ordinances § 18-19.

380
New Haven, Conn., City Code of Ordinances § 18-19.

381
Chicago, Ill., Municipal Code § 17.4.3.
New Orleans, La., City Code § 42-45. In New Orleans, the curfew is from 10 P.M. to 9 A.M.

382
Detroit, Mich., City Code § 28-3-4.

383
St. Louis, Mo., City Code § 760.130.

384
Detroit, Mich., City Code § 28-3-4.

385
New Orleans, La., City Code § 42-45.

386
Des Moines, Iowa, City Code § 42-11.

387
Nashville, Tenn., City Code § 26-2-12.

388
Birmingham, Ala., City Code art. II, § 35-12.

389
Minneapolis, Minn., Code of Ordinances § 375.060.

390
Washington, D. C., Police Regulations art 6, § 3.

391
Madison, Wis., City Ordinances § 24.04.

392
Buffalo, N. Y. City Ordinances ch. XXV, § 1702.

393
Des Moines, Iowa, City Code § 4-27.

394
Beverly Hills, Cal., Municipal Code § 4-8.202;
Decatur, Ill., City Code ch. 59, § 6;
Madison, Wis., City Ordinances § 24.04 (6);
Philadelphia, Pa., Code of Ordinances § 10-405;
Portland, Ore., City Ordinances § 14.52.050;
Richmond, Va., City Code § 28-5;
St. Louis, Mo., Ordinance No. 54719.

395
New York City, N. Y., Department of Markets rule No. 11 prevents any hawking except between 9 A.M. and 9 P. M. This rule permits sound devices which do not increase the noise level at ten feet by more than four decibels.

396
Detroit, Mich., City Code § 39-1-38;
Killeen, Tex., City Code ch. 3, art. 2, § 8;
Madison, Wis., City Ordinances § 24.04 (3);
Seattle, Wash., City Ordinances § 12.32.140.
The Nimlo model ordinance also has a provision which fits this category.

397
Buffalo, N. Y., City Ordinances ch. XXV, § 1702, prohibits use of horns, etc.;
Cleveland, Ohio, Penal Code § 13.1116;
Madison, Wis., City Ordinances § 24.04(3);
New York, N. Y., Department of Markets rule No. 11;
Ogden, Utah, Revised Ordinance Book § 23-1-5;
Philadelphia, Pa., Code of Ordinances § 10-405;
St. Louis, Mo., City Code § 760.140;
Indianapolis, Ind. (City Ordinances § 9-912) prohibits this activity in zones of quiet.

398
Cleveland, Ohio, Penal Code § 13.1117.

399
Decatur, Ill., City Code ch. 47, § 25.

400
Beverly Hills, Cal., Municipal Code § 4-8.104.

401
Buffalo, N. Y., City Ordinances ch. XXV, § 1702;
Des Moines, Iowa, City Code § 32-35;
Nashville, Tenn., City Code § 3-1-9;
New York, N. Y., Administrative Code ch. 18, § 435-6;
Richmond, Va., City Code § 26-5;
Salt Lake City, Utah, Revised Ordinances § 20-31-3;
Seattle, Wash., City Ordinances § 12-82-090, prohibits (in any building) sound equipment which casts sound on public streets for advertising purposes.

402
Fort Lauderdale, Fla., Code of Ordinances § 28-30 allows radios and other music devices from 11:30 A.M. to 1:00 P.M. and from 5:00 P.M. to 9:00 P.M. as long as sounds cannot be heard over three hundred feet away. Madison, Wis., City Ordnances § 24.04 restricts use of such equipment from buildings and aircraft except from 12:00 noon to 1:30 P.M. and 5:00 P.M. to 7:00 P.M. Madison makes an exception for equipment used by churches. Oklahoma City, Okla., City Ordinances § 9.3.05, prohibits operation of loudspeakers on any premises outside the walls of buildings from 10:00 P.M. to 6:00 A.M., New Orleans, La., City Code § 42-421, prohibits this equipment from 7:00 P.M. to 7:00 A.M. and within three hundred feet of a synagogue on Saturday and churches on Sunday.

403
Buffalo, N. Y., City Ordinances ch. XXV, § 1702.

404
Buffalo, N. Y., City Ordinances ch. XXV, § 1702,
Greensboro, N.C., Code of Ordinances § 13-12(14).

405
Detroit, Mich., City Code § 38-1-34.

406
Richmond, Va., City Code § 26-5.

407
Chicago, Ill., Municipal Code § 36-28.3;
Miami Beach, Fla., City Code § 24-2.

408
Houston, Tex., City Code § 9-11.

409
Philadelphia, Pa., Code of Ordinances § 10-404; Washington, D.C., Police Regulations art 6, § 2.

410
Nimlo Model Ordinance Prohibiting Unnecessary Noises (10), (16).

411
Beverly Hills, Cal., Municipal Code § 4-8.301;
Decatur, Ill., City Code ch. 47 § 16;
New Orleans, La., City Code § 42-68;
Philadelphia, Pa., Code of Ordinances § 10-402;
St. Louis, Mo., City Code § 760.090;
Washington, D. C., Police Regulations art. 25 § 14.

412
Minneapolis, Minn., Code of Ordinances § 240.040.

413
Chicago, Ill., Municipal Code §§ 17-4.6, 17-4.8.

414
Beverly Hills, Cal., Municipal Code § 4-8.104;
Chicago, Ill., Municipal Code § 17-4.31;
Decatur, Ill., City Code ch. 47, § 25;
St. Louis, Mo., City Code § 760.090.

415
New York, N. Y., Building Code Subart. 1208.0 (1968).

416
Interview with Irving Minkin, Assistant Director of Operations, New York City Department of Buildings, in New York City, August 6, 1971.

417
Toward a Quieter City, A Report of the Mayor's Task Force on Noise Control, New York City, N. Y., 1970, 25.

418
Interview with Irving Minkin, Assistant Director of Operations, New York City Department of Buildings, in New York City, August 6, 1971.

419
The following cities responded, stating they have some noise provision in their building codes: Helena, Mont.; Milwaukee, Wis.; Wichita, Kan.

420
Detroit, Mich., Bureau of Industrial Hygiene Regulations;
Philadelphia, Pa., Department of Public Health Regulations Pertaining to Noise, § 6-401.

421
Cincinnati, Ohio, Code of Ordinances §§ 901-L7, 901-L8;
Decatur, Ill., City Code ch. 67, § 2;
Denver, Colo., Municipal Code § 842.1;
Des Moines, Iowa, City Code § 32-6;
Kansas City, Kan., City Code § 23-35;

Madison, Wis., City Ordinances § 24.04;
Medford, Ore., City Code § 5-060;
Minneapolis, Minn., Code of Ordinances § 870.060;
New Haven, Conn., City Code of Ordinances § 18-19;
Oklahoma City, Okla., City Ordinances § 9.3.01;
Park Ridge, Ill., City Ordinances ch. 8, § 14-8-1;
Philadelphia, Pa., Code of Ordinances § 10-407;
St. Louis, Mo., City Code § 762.030;
San Clemente, Cal., City Code § 16-14;
Santa Barbara, Cal., Municipal Code § 9.16.010;
Seattle, Wash., City Ordinances § 12.82.110;
Sioux Falls, S. D., City Ordinances § 9.203;
Washington, D. C. Police Regulations art. 6, § 7 restricts this prohibition to the night time.

422
Nimlo Model Ordinance Prohibiting Unnecessary Noises (4).

423
Cleveland, Ohio, Penal Code §§ 13.1125, 13.1126. Penal Code § 13.1125 carries a penalty of not more than $25 and/or imprisonmen for the first offense of not more than thirty days, for the second of not over sixty days and of the third for not more than three months. Penal Code § 13.1126 carries a penalty of not more than $50 and/or imprisonment of not more than thirty days for the first offense, ninety days for the second and six months for the third.

424
Beverly Hills, Cal., Municipal Code § 4-8.201.

425
Beverly Hills, Cal., Municipal Code § 4-8.204;
Chicago, Ill., Municipal Code § 36.7;
Killeen, Tex., City Code ch. 7, art. 6, § 10;
Minneapolis, Minn., Code of Ordinances § 875.050;
Norfolk, Va., City Code § 29-6;
Philadelphia, Pa., Code of Ordinances § 10-403;
Phoenix, Ariz., City Code art I, § 23-17;
St. Louis, Mo., City Code § 760.100;
Scottsbluff, Neb., Ordinance No. 1668, § 10-114;
Seattle, Wash., City Ordinances § 12.84.010;
Washington, D. C., Police Regulations art. 6, § 2(a).

426
Chicago, Ill., Municipal Code § 17-4.5.

427
Sioux Falls, S.D., City Ordinances § 9.807.

428
Killeen, Tex., City Code ch. 7, art. 6, § 9.

429
Detroit, Mich., City Code § 39-1-39.

430
Minneapolis, Minn., Code of Ordinances § 870.061.

431
Killeen, Tex. (City Code ch. 7, art. 6, § 9), Park Ridge, Ill. (City Ordinances § 14-8-3), and Decatur, Ill. (City Code ch. 67 § 2), have penalties in this range.

432
Chicago, Ill., Municipal Code § 36-50.

433
Norfolk, Va., City Code § 29-6. Philadelphia, Pa. (Code of Ordinances § 10-408), has a fine of $10 for the first offense $25 for the second and $50 for all subsequent offenses. If the fine is not paid within ten days the violator is subject to imprisonment for thirty days.

434
Minneapolis, Minn. Code of Ordinances § 240.050.

435
Beverly Hills, Cal., Municipal Code § 4-8.301.

436
Chicago, Ill., Municipal Code § 17-4.8. Chicago's penalty of $15-$300 for the first offense and $50-$500 for all others applies.

437
Seattle, Wash., City Ordinances § 12.82.130.

438
Greensboro, N. C., Code of Ordinances § 13-12.

439
Philadelphia, Pa., Code of Ordinances § 10-901.

440
Denver, Colo., Municipal Code § 842.2;
Detroit, Mich., City Code § 39-1-37;
Minneapolis, Minn., Code of Ordinances § 875.030;
Los Angeles, Cal., Municipal Code § 41.57.

441
Nashville, Tenn., City Code § 29-1-54;
San Francisco, Cal., Police Code ch. VIII, § 49.

The distances are fifty feet in San Francisco and one hundred feet in Nashville. Richmond, Va. (City Code § 26-5), has a law forbidding sound equipment to emit noise above the level of conversational speech at two hundred feet from the property from which the sound emanates.

442
Washington, D. C., Police Regulations art. 6, § 1.

443
Beverly Hills, Cal., Municipal Code § 4-8.502 et seq.;
Buffalo, N. Y., City Ordinances ch. XXV, § 1703;
Des Moines, Iowa, City Code § 32-35;
Medford, Ore., City Code § 5-620 (i);
Missoula, Mont., City Ordnance §§ 21-28, 21-29;
Ogden, Utah, Revised Ordinance Book § 23-1-20;
Salt Lake City, Utah, Revised Ordinances §§ 20-31-1, 20-31-12;
San Clemente, Cal., City Code §§ 16-22 to 16-25;
San Francisco, Cal., Police Code ch. VIII, § 44-49;
Santa Barbara, Cal., Municipal Code § 9.16.020.
Minneapolis, Minn. (Code of Ordinances § 352.080), and
Flagstaff, Ariz. (City Code § 6-1-38), restrict only sound trucks.

444
Des Moines, Iowa, City Code § 32-35.

445
Beverly Hills, Cal., Municipal Code § 4-8.506.

446
Jacksonville, Fla., Ordinance Code § 324.103.

447
Des Moines, Iowa, City Code § 32-35;
Greensboro, N.C., Code of Ordinances § 13-12;
Phoenix, Ariz., City Code § 23-15;
Santa Barbara, Cal., Municipal Code ch. 9.14.

448
Madison, Wis., City Ordinances § 24.04(3).

449
Salt Lake City, Utah, Revised Ordinances § 20-31-10.

450
Santa Barbara, Cal., Municipal Code § 914.030.

451
Decatur, Ill., City Code ch. 46, §§ 13,301;
Madison, Wis., City Ordinances § 24-04(4);
Seattle, Wash., City Ordinances § 12.82.120;
Washington, D. C., Police Regulations art. 18, § 1.

452
Beverly Hills, Municipal Code § 4-8.205;
Dallas, Tex., Criminal and Civil Code ch. 30, § 7-38.

453
Birmingham, Ala., City Code § 7-3,
Salt Lake City, Utah, Revised Ordinances § 1-3115.

454
Salt Lake City, Utah, Revised Ordinances § 1-3115.

455
Decatur, Ill., City Code ch. 46, §§ 13,30.

456
Beverly Hills, Cal., Municipal Code § 4-8.205.

457
Dallas, Tex., Criminal and Civil Code ch. 30, § 7-38.

458
Nimlo Model Ordinance Prohibiting Unnecessary Noises (5).

459
Statement of Jerome Kretschmer, Administrator, Environmental Protection Administration of New York City, before the Subcommittee on Environment, Senate Commerce Committee, June 29, 1971, 7.

APPENDIX I

SUMMARY OF FEDERAL LAWS

Atomic Energy Commission (AEC)

Occupational and Aircraft Noise

AEC Manual 0550-01 (February 25, 1970) (adopts Walsh-Healey Occupational Noise standards and Federal Aviation Administration Part 36 standards

Air Force

Occupational Noise

AFR 160-3 (29 October 1956) as amended,
AFR 160-3A (27 June 1960), and
AFR 160-3B (7 February 1967)

Aircraft Noise

AFM 86-5, TM 5-365, NAVDOCKS P-98 (10 October 1964)
A.F. Reg. 55-34 (5 February 1971)
MIL-N-93155A (USAF) (25 March 1970, amended 2 September 1970)
MIL-S-008806B (USAF)

Army

Aircraft Noise

TM 5-365, AFM 86-5, NAVDOCKS P-98 (10 October 1964)

Construction Noise (both acoustical characteristics of buildings and construction site noise)

Corps. of Engineers, U.S. Army, EM 385-1-1, Safety: General Requirements, § 32, "Noise Control" at 27 (1 November 1967)

Corps. of Engineers, CE-1300 (May 1970)
ETL 1110-3-141 (30 November 1970)

Department of Defense

General

MIL-STD-1472A (acts concurrently with other military regulations)

Department of Interior

Occupational Noise

30 U.S.C. § 846 (Supp. V, 1970)
28 C.F.R. § 70-504.1, now appearing at 36 Fed. Reg. 12740 (July 7, 1971)

Department of Labor

Occupational Noise

41 U.S.C. § 35(e) (1964)
41 C.F.R. § 50-204.1 and .10 (1971)
29 U.S.C.A. § 651, et seq. (1971)
29 C.F.R. § 1910.1 and .95 (May 29, 1971)

Construction Noise

40 U.S.C.A. § 333 (1971)
29 C.F.R. § 1518.52, now appearing at 36 Fed. Reg. 7348 (April 17, 1971)

Department of Transportation

General Transportation Noise

49 U.S.C. § 1653(a) (Supp. IV, 1969)
DOT Order 1100.37, 2 September 1969
DOT Order 1100.23 Chg. 2, 8 May 1968

Aircraft

49 U.S.C. § 1653(a) (Supp. IV, 1969)
see generally Federal Aviation Administration

Highway-Related Noise

23 U.S.C. § 101, et seq. (1964), particularly the Federal-aid Highway Act of 1970, § 136, amending 23 U.S.C. § 109(g), 84 Stat. 1713

Environmental Protection Agency

General

Title IV of the Clean Air Amendments of 1970, Pub. L. No. 91-604

Federal Aviation Administration

Aircraft

Generally provisions of 49 U.S.C. § 1301, et seq. (1964) but particularly 49 U.S.C. § 1431 (Supp. IV, 1969)
14 C.F.R. § 36 and 21 (1971)
49 U.S.C.A. § 1701, et seq. (Supp. 1971)

Federal Highway Administration

Highway-Related Noise

23 U.S.C.A. § 101.109 (Supp. 1971)
Bureau of Public Roads, PPM 20-8 "Public Hearing and Location Approval" (January 14, 1969)

Federal Housing Administration

Construction (Acoustical Characteristics of Buildigns)

FHA Manual, Vol. VII, Book 1, Underwriting-Home Mortgages, § 71453
FHA #2600, Minimum Property Standards for Multifamily Housing, § M405 (February 1971)
(See HUD)

Federal Power Commission

Industrial (Internal Combustion Engine)

15 U.S.C. § 717, et seq. (1964)
18 C.F.R. § 2.69 (1971)

General Services Administration

Construction Noise (Acoustical Characteristics of Buildings and Site Noise)

GSA Handbook: PBS P 3410.5 Chg. 1 (September 2, 1969) and
PBS P 3460.1C

Public Building Service: Guide Specifications, PBS 4-0950 (May 1968)
PBS 4-1031 (February 1968), and
PBS 4-515-71 (April 1970)

Also see trial clause in government construction contract at Contract GSA-Washington, D.C. 71-8378, "United States Courthouse and Federal Office Building, Philadelphia, Pennsylvania," Cl. 35.6 at 2-14

Department of Health, Education, and Welfare

Occupational Noise

Review authority under the Coal Mines Health and Safety Act at 30 U.S.C.A. § 846 (Supp. V, 1970)

Department of Housing and Urban Development

Construction Noise (Acoustical Characteristics of Buildings)

HUD Policy Circular 1390.2 (July 16, 1971)

Navy

Occupational Noise

BUMEDINST 6260.6B (5 March 1970) BuMedNote 6260.732 (28 April, 1971)
NAVAIRINST 6260.1 (24 February 1971)
OPNAVINST 5100.14 (11 August 1970)

Aircraft Noise

NAVDOCKS P-98, AFM 86-5, TM 5-365 (10 October 1964)

APPENDIX II

SUMMARY OF STATE LAWS

Alabama

Title 36, Sec. 36 Horns
Sec. 39 Mufflers

Alaska

Title 11, Sec. 11.45.030 Disorderly Conduct

Arizona

Title 13, Art. 15, Sec. 13-371 Disturbing the Peace
Title 28, Sec. 28-954 Horns
Sec. 28-955 Mufflers

Arkansas

Title 75, Sec. 725 Horns
Sec. 726 Mufflers

California

Title 7, Chap. 1.5 Office of Planning and Research
Title 11, Sec. 415 Disturbing the Peace
Public Utilities Code, Chap. 5 Powerplant Sites
Sec. 21669-21669.4 Airports
Public Resources Code, Div. 13, Sec. 21000-21150, Environmental Quality Act
Motor Vehicle Code, Sec. 23130, Sec. 23160, Motor Vehicle Noise Limits
Streets and Highways Codes, Sec. 216

Colorado

Chap. 13, Sec. 5-104 Horns
Sec. 5-105 Mufflers
Chap. 66, Art. 35 Noise Abatement
Chap. 132, Sec. 1-9-1-10 Environmental Quality

Connecticut

Title 7, Sec. 194 Municipal Powers
Title 14, Sec. 14-80(e) Motor Vehicle Noise
Public Act No. 762 - Maximum Vehicle Noise Levels

Delaware

Title 4, Sec. 543 Grounds for Refusal of License to Sell Alcoholic Beverages
Sec. 561 Grounds for Cancellation or Suspension of License
Chap. 43, Sec. 4311 Mufflers

Florida

Sec. 317.631 Mufflers
Sec. 403.031, 403.061 Air and Water Pollution Control-Noise

Georgia

Title 68, Sec. 1716 Horns
Sec. 1717 Mufflers

Hawaii

Chap. 103, Sec. 103 Noise Control in Schools
Chap. 322, Excessive Noise
Sec. 267-1 Common Nuisances
Sec. 311-24 Mufflers on Motor Scooters

Idaho

Sec. 49-835 Mufflers

Illinois

Vehicle Code, Sec. 12-121 Mufflers
Sec. 314-3 Mufflers on Boats
Sec. 11-5-2 Municipal Powers
Chap. 111 1/2 Environmental Protection Act

Indiana

Sec. 47-2230 Mufflers
Sec. 48-1401 Municipal Corporations Powers

Iowa

Chap. 138, Sec. 138.1 Migrant Labor Camps
Sec. 321.436 Mufflers
Sec. 368.7 Powers of Cities and Towns

Kansas

Chap. 8, Sec. 8-5, 102 Horns
Sec. 8-5, 103 Mufflers
Chap. 21, Sec. 21-950 Disturbance of the Peace
Sec. 21-4101 Disorderly Conduct
Chap. 82a, Sec. 82a-809 Motorboat Mufflers

Kentucky

Sec. 82.220 Powers of Local Units
Sec. 85.180 Powers of Local Units
Sec. 85.190 Powers of Local Units
Sec. 189.020 Vehicle Equipment
Sec. 189.140 Mufflers

Louisana

R.S. 14, Sec. 103 Disturbing the Peace
R.S. 32, 352 Mufflers

Maine

Title 12, Chap. 304 Snowmobiles
Title 20, Sec. 3771 Disturbing Schools
Title 29, Sec. 1362 Motor Vehicle Noise
Sec. 1364 Mufflers

Maryland

Art. 66 1/2, Sec. 11-1117 Excessive Vehicle Noise
Sec. 11-1409 Muffler Cutouts
Sec. 12-401 Horns
Sec. 12-401.1 Bells on Ice Cream Sales Vehicles
Sec. 12-402 Mufflers

Massachusetts

Chap. 90, Sec. 16 Motor Vehicle Noise
Chap. 90B, Sec. 24 Restrictions on Noise of Snow Vehicles
Chap. 272, Sec. 41 Distrubance of Libraries

Michigan

Sec. 5.1740 General Powers of City Corporation
Sec. 9.2406 Horns
Sec. 9.2407 Mufflers

Minnesota

Chap. 169, Sec. 169.69 Mufflers
Sec. 169.691 Motor Vehicle Noise Limits
Chap. 412, Sec. 412.191 Village Council Powers
Chap. 360, Sec. 360.063 Airport Zoning
360.075 Advertising Noise from Aircraft

Mississippi

Title 11, Sec. 2088 Disturbance of Family
Sec. 2090.5 Disturbance in Public Place
Title 16, Sec. 3374-124 Power of Municipalities
Title 30, Sec. 8251 Mufflers

Missouri

Sec. 304.560 Horns, Mufflers
Sec. 562.240 Disturbing the Peace

Montana

Sec. 32-31-146 Mufflers
Fish and Game Laws (Supp. 1971), p. 174 (Senate Bill 54, Sec. 9) - Snowmobiles

Nebraska

Sec. 14-102 Powers of Cities of Metropolitan Class
Sec. 16-227 Powers of Cities of the First Class to Prevent Noises
Sec. 16-228 Powers of Cities of the First Class to Prevent Disorderly Conduct
Sec. 17-556 Powers of Cities of Second Class to Prevent Noises
Sec. 32-466 Disturbing Elections
Sec. 39-777 Mufflers
Sec. 81-815.09 Mufflers on Boats

Nevada

Sec. 486.100 Mufflers on Power Cycles
Sec. 266.360 Power of City Councils to Regulate Business Noise

New Hampshire

Sec. 263.46 Mufflers

New Jersey

Title 40, Sec. 40:175-10 Powers of Local Boards
Title 39, Sec. 39:3-70 Mufflers
Sec. 39:4-78 Carrying Metals

New Mexico

64-20-44 Mufflers

New York

Conservation Law Sec. 8-0305 Snowmobiles
General Business Law, Sec. 7 Sports and Shows on Sunday
Sec. 14 Parades on Sundays
Penal Law, Sec. 240.20 Disorderly Conduct
Sec. 240.21 Disturbance of Religious Service
Navigation Law Sec. 44 Mufflers on Boats
Multiple Dwelling Law, Sec. 84 Construction Standards for Control of Noise
Town Law Sec. 130 Powers of Town Boards
Vehicle and Traffice Law Sec. 375 (31) Mufflers
Sec. 381 Motorcycle Equipment
Sec. 386 Motor Vehicle Noise Limit
Environmental Conservation Law

North Carolina

Sec. 20-128 Mufflers

North Dakota

Sec. 23-01-17 Noise Harmful to Health and Safety
Sec. 39-21-37 Mufflers

Ohio

Sec. 2923.41 Disturbance of the Peace
Sec. 4513.22 Mufflers

Oklahoma

Title 11, Sec. 655 Powers of Local Councils to Prohibit Noises
Title 21, Sec. 1321.8 Riots
Title 47, Sec. 12-402 Mufflers

Oregon

Sec. 483.446 (3) Horns
Sec. 483.448 Mufflers

Pennsylvania

Title 34 Sec. 1311.704 (g) Hunting Sounds
Title 53 Sec. 46202 (20) Powers of Boroughs to Regulate Disturbance of the Peace
Title 55 Sec. 411 Mufflers on Boats
Sec. 485F Mufflers on Motorboats
Title 71 Sec. 510-517 Abatement of Nuisances
Title 75 Sec. 828 Mufflers

Puerto Rico

Title 9 Sec. 1302 Mufflers

Rhode Island

Sec. 12-2-4 Power of R.R. Police to Arrest Disorderly Person
Sec. 12-2-5 Power of Steamboat Police to Arrest Disorderly Person
Sec. 31-23-13 Mufflers

South Carolina

Sec. 46-601 Mufflers

South Dakota

Sec. 32-15-10 Horns
Sec. 32-15-11 Sirens
Sec. 32-15-17 Mufflers

Tennessee

Sec. 39-1204 Disturbing Religious, Educational, Literacy or Temperance Assemblies
Sec. 39-1213 Disturbance of Peace
Sec. 59-901 (a) Horns
Sec. 59-902 Mufflers

Texas

Title 28, Art. 1015 Powers of Governing Bodies of Cities, Towns and Villages
Title 9, Art. 281 Disturbing Congregation
Art. 451 Disturbing Families
Art. 465 Disturbing Residences
Art. 474 Disturbing the Peace
Title 11, Art. 666-12 Cancellation or Suspension of Permit to Sell Alcoholic Beverages
Title 13, Art. 796 Horns
Art. 797 Devices to Prevent Unusual Noise

Utah

Sec. 10-8-47 Powers of Cities and Towns to Prevent Noises
Sec. 10-8-50 Powers of Cities and Towns to Punish for Disturbing the Peace
Sec. 76-52-9 Disturbing Neighborhood Quiet
Sec. 76-55-3 Disturbing Assembly for Religious Worship
Sec. 41-6-147 Mufflers

Vermont

Title 13, Sec. 1022 Noises in the Nighttime
Sec. 1023 Disturbing Meetings and Schools
Sec. 1051 Breach of the Peace
Title 23, Sec. 1097 Mufflers Cutouts

Virginia

Sec. 46.1-301 Vehicle Exhaust
Sec. 46.1-302 Muffler Cutout Illegal

Virgin Islands

Title 14 Sec. 622 Disturbing the Peace
Sec. 624 Disturbing Meetings
Title 20 Sec. 464 Horns and Mufflers
Title 20 Sec. 465 Motorcycle Mufflers

Washington

Title 9, Sec. 9.76.010 Sabbath Breaking
Sec. 9.76.050 Disturbing Religious Meeting
Title 35, Sec. 35.22.280 (36) Power of First Class Cities to Provide for Disorderly Conduct
Sec. 35.23.440 (10) Power of Second Class Cities to Prevent Disturbance of the Peace
Title 46, Sec. 46.37.390 Mufflers

West Virginia

Sec. 17C-15-34(a) Mufflers

Wisconsin

Chap. 22, Sec. 22.40 (11)(12) Auto Races on State Fair Grounds
Chap. 60, Sec. 60.29 (35) Power of Town Boards to Regulate Motorboats
Vehicle Code, Title 44, Sec. 347.39 Mufflers
Sec. 350-10 Provisions for Snowmobile Operation
Criminal Code, Title 45, Sec. 947.01 Disorderly Conduct

Wyoming

Sec. 6-112 Disturbing Meetings, Generally
Sec. 6-114 Breach of the Peace
Sec. 6-173 Disturbing Religious Worship
Sec. 31-204 Horns
Sec. 31-205 Mufflers

APPENDIX III

SUMMARY OF CITY LAWS

Ann Arbor, Michigan

City Code
    Title IX Police Regulations
        Sec. 9:12 Unlawful to create unreasonable noise
        Sec. 9:13 Following Acts (NIMLO)
        Sec. 9:14 Vehicular Noise
            1. Definitions
            2. Acts Prohibited
                a. Horns
                b. General
                c. Exhaust
            3. Sound Level Tests

Aspen, Colorado

City Code
    Title 6
        Chap. 1 - General Offenses
        Sec. 6-1-48 General Noise Prohibited

Atlanta, Georgia

No laws - letter of June 18, 1971 from Dan E. Sweat, Jr.
Chief Administration Officer
Office of the Mayor
Atlanta, Ga.

Bangor, Maine

No laws - letter of July 20, 1971 from Merle F. Goff
City Manager
Bangor, Maine

Beverly Hills, California

Municipal Code
    Title 4, Chap. 8 - Noise Regulation
        Article 1 - General Provisions
        Sec. 4-8.101 Declaration of Policy

Sec. 408.102 Definitions
Sec. 4-8.103 Measurement Criteria
Sec. 4-8.104 Violations: Misdemeanor
Sec. 4-8.105 Violations: Additional remedies
Sec. 4-8.106 Severability
Article 2 - Special Noise Sources
Sec. 4-8.201 Radios, T.V. sets & similar devices
Sec. 4-8.202 Hawkers & Peddlars
Sec. 4-8.203 Drums
Sec. 4-8.204 Schools, Hospitals, Churches
Sec. 4-8.205 Animals and Fowl
Sec. 4-8.206 Machinery, Equipment, Fans and Air-Conditioning
Article 3 - Construction
Sec. 4-8.301 Construction of Buildings and Projects
Article 4 - Vehicles
Sec. 4-8.401 Vehicles Repairs
Sec. 4-8.402 Motor Vehicles
Article 5 - Amplified Sound
Sec. 4-8.501 Purpose
Sec. 4-8.502 Registration: Required
Sec. 4-8.503 Registration: Application & Issuance
Sec. 4-8.504 Appeals
Sec. 4-8.505 Fees
Sec. 4-8.506 Regulation
Article 6 - Train Horns and Whistle
Sec. 4-8.601 Excessive Noise Prohibited
Article 7 - General Noise Regulations
Sec. 4-8.701 General Noise Regulations

Billings, Montana

Code of Ordinances
Sec. 21-1-178 Mufflers

Binghamton, New York

Zoning Ordinances
Sec. 609 Noise

Birmingham, Alabama

City Code
Sec. 3-9 Noisy and Obnoxious Advertising
Sec. 7-3 Noisy Animals or Fowl

Sec. 26-9 Prevention of Noise from Tourist Homes
Sec. 34-143 Motor Vehicle Horns
Sec. 34-146 Motor Vehicle Mufflers

Article II Noises
Sec. 35-10 Illegal Noises Generally (NIMLO)
Sec. 35-11 Outside Speakers emanating music on public streets
Sec. 35-12 Transmitting music audible to Persons outside premises
Sec. 35-13 Payment of license tax for automatic music machines
Sec. 35-14 Radios and Television

Bismarck, North Dakota

Revised City Ordinances
Sec. 10.1105 Motor Vehicle Horns
Sec. 10.1109 Motor Vehicle Mufflers
Sec. 19.0201 Interference with Radio Reception Prohibited
Sec. 19.0205 Loud, Disturbing and Unnecessary Noises Prohibited (NIMLO)

Boston, Massachusetts

Revised City Ordinances
Chap. 15
Sec. 2 Jurisdiction and Powers of Air Pollution Control Commission
Chap. 29 Unreasonable Noises

Boulder, Colorado

Revised Code
Sec. 21-61 Noises Prohibited

Buffalo, New York

City Ordinances
Chap. XXV
Art. XVII Noise Control
Sec. 1701 Prohibited Noises (NIMLO)
Sec. 1702 Commercial Purposes
Sec. 1703 Non-commercial Purposes

Cheyenne, Wyoming

No laws - letter of June 21, 1971 from Floyd Holland
Mayor
Cheyenne, Wyoming

Chicago, Illinois

Municipal Code

Sec. 17-1.6	Qualifications of Deputy Commissioner of Environmental Control
Sec. 17-1.8	Qualifications of Engineers
Sec. 17-1.11	Duties of the Commissioner
Sec. 17-1.14	Policy of city; Subcommittees
Sec. 17-4.1	Definitions
Sec. 17-4.2	General Restrictions
Sec. 17-4.3	Hand organ or musical instrument
Sec. 17-4.4	Steam Whistles
Sec. 17-4.5	Noise from Buildings
Sec. 17-4.6	Building Operations
Sec. 17-4.6	Motor Vehicles
Sec. 17-4.8	Construction, Industrial, Commercial, Agriculture and Domestic Equipment
Sec. 17-4.9	Uses in zones in Zoning Ordinances covered
Sec. 17-4.10	Measurement Criteria
Sec. 17-4.11	Measurement of Noise in Manufacturing Districts
Sec. 17-4.12	Restricted Manufacturing District Noise Limits
Sec. 17-4.13	General Manufacturing District Noise Limits
Sec. 17-4.14	Heavy Manufacturing District Noise Limits
Sec. 17-4.20	Horns on Motor Vehicles
Sec. 17-4.21	Harbor Craft Noise Limits
Sec. 17-4.22	Recreational and other vehicle Noise Limits
Sec. 17-4.23	Public Performance exempt
Sec. 17-4.24	Test procedures for new motor vehicles
Sec. 17-4.25	Test procedures for operation of motor vehicles
Sec. 17-4.26	Test procedures for engine-powered equipment, hand tools, etc.

Sec. 17-4.27 Test procedures for property uses
Sec. 17-4.28 Test procedures for recreational vehicles
Sec. 17-4.30 Other remedies not impaired
Sec. 17-4.31 Penalties

Sec. 27-264 Horns; when used
Sec. 27-301 Bells and Sirens on Bicycles
Sec. 27-345 Horns Required
Sec. 27-353 Mufflers
Sec. 27-363 Penalties

Sec. 36-7 Zones of Quiet
Sec. 36-28.3 Sound amplifiers on aircraft
Sec. 36-50 Penalties
Sec. 38-28 Boat Whistles
Sec. 38-29 Motorboat Operations
Sec. 38-59 Penalties
Sec. 106-17 Noises Prohibited in Connection with Auctions
Sec. 106-19 Penalties
Sec. 150-15 Noise Limits on Foundries near Residences
Sec. 150-23 Operations of Machine shops at night
Sec. 150-25 Noise Limits on Machine shops near residences
Sec. 150-45 Penalties
Sec. 188-44 Locomotive signal noise
Sec. 188-52 Penalties

Cincinnati, Ohio

Code of Ordinances
Sec. 511-2 Unnecessary Noise in Operation of Vehicles
Sec. 511-16 Mufflers
Sec. 901-L7 Loud Noises
Sec. 901-L8 Loud Noises, Music

Cleveland, Ohio

Penal Code
Sec. 13.1110 Dances, Entertainments, Etc.
Sec. 13.1111 Appeal
Sec. 13.1112 Penalties
Sec. 13.1113 Severability

- Sec. 13.1114 Unnecessary Noises (NIMLO)
- Sec. 13.1115 Unnecessary Noises in Specific Areas
- Sec. 13.1116 Bells
- Sec. 13.1117 Penalties
- Sec. 13.1118 Hours for Producing Music, Permit
- Sec. 13.1119 Permits - Application; Provisions
- Sec. 13.1122 Penalty
- Sec. 13.1123 Muffler on Gas Engines
- Sec. 13.1124 Participation in Disorderly Assemblies; Penalty
- Sec. 131125 Breach of the Peace; Penalty
- Sec. 13.1126 Rude Disturbance, Etc; Penalty

Columbia, South Carolina

- Zoning Ordinance - never used
  letter of July 20, 1971 from
  James M. Norton
  Air Pollution Control Officer
  Columbia, South Carolina

Dallas, Texas

- Criminal and Civil Code
  - Chap. 30 - Noise
    - Sec. 7-38 Barking dogs
    - Sec. 28-9 Zones of Quiet
    - Sec. 28-185 Whistles, Bells on vehicles
    - Sec. 28-186 " " " "
    - Sec. 28-192 Horns
    - Sec. 30-1 Noises detrimental to life or health
    - Sec. 30-2 Noises interfering with enjoyment of property or public peace and comfort
    - Sec. 30-3 Unreasonably loud, disturbing, unnecessary noises - Prohibited (NIMLO)
    - Sec. 30-4 Same - Enumerated (NIMLO)
    - Sec. 30-5 Use of bell, siren, whistle on vehicle
    - Sec. 30-6 Arrest for violation of sec. 30-4 and 30-5
    - Sec. 30-7 Noisy animals
    - Sec. 32-49 Sirens on boats
    - Sec. 39-7, 3908 Train bells and whistles
- Comprehensive Zoning Ordinance
  - Volume III
    - 10-420 Noise
    - 10-421 Measurement criteria

10-422	Permissible Noise Level: I-1, I-2, Planned Development Districts
10-423	Permissible Noise Level: I-3 Districts
10-424	Permissible Noise Level: Residential Districts
10-425	Permissible Noise Level: Retail and Commercial Districts
10-426	Special Noise Corrections

Decatur, Illinois

- City Code
  - Chap. 30 - Traffic
    - Sec. 18 Zone of Quiet
    - Sec. 88 Unnecessary Noise
    - Sec. 89 Horns
    - Sec. 91 Mufflers
  - Chap. 46 - Control of Animals, Fowl, and Dogs
    - Sec. 13 Barking Dogs
    - Sec. 30 Other Animals
  - Chap. 47 - Nuisances
    - Sec. 10 Use of Premises
    - Sec. 15 Disturbing the Peace
    - Sec. 16 Building Operations
    - Sec. 25 Penalties
  - Chap. 54.1 - Drive-In Restaurants
    - Sec. 2 Noise
    - Sec. 18 Loud speakers
  - Chap. 59 - Peddling
    - Sec. 6 Hawking
  - Chap. 62 - Taxicabs
    - Sec. 28 Blowing of Horns
  - Chap. 66 - Regulation of Lake Decatur
    - Sec. 23 Cut-outs prohibited
  - Chap. 67 - Misdemeanors
    - Sec. 2 Disturbing the Peace
    - Sec. 5 Disturbing Lawful Assemblage
    - Sec. 6 Disturbing Places of Amusement

Denver, Colorado

- Municipal Code
  - Sec. 310.8 Disturbance of the peace
  - Sec. 372.1-10 Flight Regulations
  - Sec. 507.6 Mufflers

Sec. 842.1 Disturbing the Peace: Offensive Language
Sec. 842.2 Unlawful to Produce Loud and Raucous Noise upon Public Property; Loud Speakers
Sec. 842.3 Unlawful to emit in Public Places Loud and Raucous Noises

Zoning Ordinances
Sec. 13-2(2) Volume of Sound Generated

Des Moines, Iowa

City Code
Sec. 4-27 Use of sound amplifying devices at airport
Sec. 13-68 Loud talking in cemetaries
Sec. 30-159 Driving in Zones of Quiet
Sec. 30-1730 Horns
Sec. 30-1731 Sirens and Bells
Sec. 30-1733 Mufflers
Sec. 32-6 Disturbing peace and quiet
Sec. 32-31 Motorboats - Mufflers and cut-outs
Sec. 32-35 Regulation of Sound Amplifying Equipment
Sec. 42-11 Band Prohibited on streets; exception
Sec. 42-18 Noisy or disorderly parades
Sec. 45-3 Ringing bells in switching yards
Sec. 46A-20 Mufflers on motorboats

Detroit, Michigan

City Code
Sec. 28-3-4 Noise Prohibited in Hospital Zones; some declared a nuisance
Sec. 38-1-34 Operation of sound cars prohibited in certain areas
Sec. 38-6-20-Sec. 38-6-26 Noise Control of Motorcycles
Sec. 38-10-6 Horns
Sec. 38-10-7 Sirens
Sec. 38-10-10 Cut-outs, unnecessary noise from motor vehicles
Sec. 39-1-37 Noise Amplifying devices
Sec. 39-1-38 Same - Vendors
Sec. 39-1-39 Same - Persons in vehicles
Sec. 39-1-40 Nuisances-Maintenance prohibited

Sec. 39-1-73	Steam or compressed air whistles - Use by steamliners
Sec. 39-1-74	Same - Use by Locomotives
Sec. 39-1-75	Same - Stationary engine whistle
Sec. 39-1-76	Same - Use for Alarms for fire, etc.
Sec. 39-1-77	Steam Producing, etc. equipment
Sec. 39-1-90.1	Wash racks and Motor Vehicle Laundries
Sec. 39-1-90.2	Same-Restriction on Noise
Sec. 39-1-90.3	Same - Restriction on time of operation
Sec. 43-1-19	Use of Noisemaking device to attract patrons restricted

Bureau of Industrial Hygiene Noise Regulations

Dillon, Colorado

Snowmobile Ordinance

Durango, Colorado

No laws - letter of June 25, 1971 from Robert W. Rank
City Manager
Durango, Colorado

El Paso, Texas

City Code

Sec. 12-49	Noises constituting a nuisance-Generally	(NIMLO)
Sec. 12-50	Same - Specifically	(NIMLO)
Sec. 12-52	Abatement by Chief of Police	

Evergreen, Colorado

No laws - letter of June 22, 1971 from Dan Rock
Manager, Evergreen Area Chamber of Commerce
Evergreen, Colorado

Flagstaff, Arizona

City Code

Sec. 6-1-42	Mufflers; Unnecessary Noise
Sec. 6-1-38	Loud Speakers on Sound Trucks
Sec. 6-1-39	Loud and Unusual Music

Fort Lauderdale, Florida

Code of Ordinances

Sec. 28-30	Noises - Musical instruments and radios
Sec. 28-31	Same - Hours noisy outdoor amusements must close
Sec. 28-32	Same - Hours noisy business may operate
Sec. 28-33	Loud and Disturbing noises from filling stations
Sec. 28-34	Loud and Unnecessary noises prohibited (NIMLO)
Sec. 28-35	Same - Acts declared loud and unnecessary (NIMLO)
Sec. 2-121	Committee on Noise Control established

Grand Junction, Colorado

No laws - letter of June 22, 1971 from Harvey M. Pose
Assistant to City Manager
Grand Junction, Colorado

Greensboro, North Carolina

Code of Ordinances

Sec. 13-12	Unnecessary Noise Generally (NIMLO)

Hartford, Connecticut

City Code

Sec. 21-1	Loud, disturbing and unnecessary noises prohibited (NIMLO)
Sec. 21-2	Enumeration of acts declared loud and disturbing (NIMLO)

Helena, Montana

City Ordinances

Sec. 10-13-34 Mufflers, Prevention of Noise

Uniform Building and Housing Code

Honolulu, Hawaii

No laws due to state preemption - letter of June 23, 1971
from Nathaniel Felzer, Deputy Corporation Council
Honolulu, Hawaii

Houston, Texas

City Charter
Article II Sec. 16(n) To restrain various noises
City Code
Sec. 9-11 Advertising by loudspeakers from aircraft over city
Sec. 14-14 Convalescent home noise
Sec. 23-10 Disturbing the peace by junk dealers
Sec. 29-1 Loud, unnecessary, disturbing noise generally
Sec. 29-2, 29-21 Acts declared loud and unnecessary (NIMLO)

Indianapolis, Indiana

City Ordinances
Sec. 9-912 Additional quiet zones
Sec. 9-913 Penalty as to all quiet zones
Sec. 10-302 Unlawful noises (NIMLO)
Sec. 10-303 Penalties for aforesaid noises
Sec. 10-307 Commercial advertising by sound truck prohibited

Jacksonville, Florida

Ordinance Code
Sec. 324.101 Unnecessary Noises Prohibited (NIMLO)
Sec. 324.102 Acts deemed to be unnecessary Noises (NIMLO)
Sec. 324.103 Sound trucks prohibited in residential districts
Sec. 324.104 Business Noises in Residential Sections
Sec. 324.105 Blowing Locomotive Whistles after 10 P.M.
Zoning Regulations
Sec. 708.423 Performance Standards: Noise

Juneau, Alaska

Zoning Ordinance

Kansas City, Kansas

City Code
Sec. 23-35 Noise Generally

- Sec. 23-50 Stationary engines, motors, etc., noise and mufflers

Killeen, Texas

- City Code
  - Chap. 3, Art. 2 Sec. 8 Loud Noises and Speaking devices
    - Sec. 15 Penalties
    - Art. 7, Sec. 1 Conduct of shows
  - Chap. 6, Art. 3, Sec. 1 Fireworks
  - Chap. 7, Art. 6, Sec. 9 Insulting and disturbing meeting
    - Sec. 10 Disturbing of Public worship
  - Chap. 7, Art. 9, Sec. 1 Unlawful to create noise (NIMLO)
    - Sec. 2 Acts deemed violation (NIMLO)
    - Sec. 3 Penalty
  - Chap. 13, Art. 1, Sec. 54 Mufflers

Las Vegas, Nevada

- City Code
  - Zoning
    - Sec. 11-1-22 M, Industrial District Regulation
    - Sec. 11-1-23 C-V, Civic District Regulations
    - Sec. 6-1-24 Noises (NIMLO)

Little Rock, Arkansas

- City Ordinances
  - Art. XIV Miscellaneous Provisions
    - Sec. 39-126 Equipment - Motor Vehicles
    - Sec. 39-153 Zone of quiet

Los Angeles, California

- Administrative Code
  - Art. 3
    - Sec. 22.9 Enforcement of Ordinances Relating to dumb animals, public pound, Animal license
- Municipal Code
  - Sec. 41.57 Loud and Raucous Noise Prohibited

Madison, Wisconsin

- City Ordinances
  - Sec. 12.115 (1) Horns
    (2) Mufflers

Sec. 24.02 Disorderly Conduct
Sec. 24.04 Prohibition of Noises Disturbing the Public Peace
Sec. 24.05 Sounding of Railroad Whistle
Sec. 24.20 Penalty

Manchester, New Hampshire

City Noise Ordinances
- Sec. 1 Loud and Unnecessary Noise (NIMLO)
- Sec. 2 Loud and Unnecessary Noise (NIMLO)
- Sec. 3 Specific Acts (NIMLO)
- Sec. 4 Penalties
- Sec. 5 Separability
- Sec. 6 Ordinances Repealed

Medford, Oregon

City Code
- Chap. 5 - Offenses
  - Sec. 5-060 Disorderly Conduct
  - Sec. 5-080 Disturbance of Assemblies
  - Sec. 5-105 Discharge of Weapons
  - Sec. 5-620 Unnecessary Noise (NIMLO)
  - Sec. 5-623 Abatement Notice
  - Sec. 5-645 Abatement by City
- Chap. 6 - Motor Vehicles
  - Sec. 6-460 Horns and Noise

Memphis, Tennessee

City Code
- Sec. 23-116 Muffler Required
- Sec. 23-117 Muffler cut-out prohibited
- Sec. 23-118 Horns
- Sec. 23-118.1 Sounding of vehicle horn
- Sec. 23-119 Sirens, whistles, bells
- Chap. 24 - Noise
  - Sec. 24-1 Loud, disturbing and unnecessary noise generally (NIMLO)
  - Sec. 24-2, Sec. 24-14 Acts deemed loud, unnecessary (NIMLO)

Miami Beach, Florida

City Code
- Chap. 24 - Noises

- Sec. 24-1 Purposes of chapter
- Sec. 24-2 Prohibited noises (NIMLO)
- Sec. 24-3 Waiver of provisions of chapter

Milwaukee, Wisconsin

- City Code
    - Sec. 6-36 Prohibition on noise for commercial purposes (Zones of Quiet)
    - Sec. 8-80 (4) (b) Mufflers on boats with motors
    - Sec. 8-80 (10) (k) Horns and whistles on boats
    - Sec. 78-18 Noise from dogs
    - Sec. 80-26 Business Noise
    - Sec. 85-14 Noise for attracting attention
    - Sec. 90-27 Noise from tavern amusement premises
    - Sec. 100-31 Noise from alarms or bells on coaches
    - Sec. 101-282 Automobile horns
    - Sec. 101-295 (3) Tire Chains
    - Sec. 101-283 Mufflers on motor vehicles
    - Sec. 105-6 Bells on motor vehicles
    - Sec. 105-29 Exhaust from stationary engine
- Building Code

Minneapolis, Minnesota

- City Charter
    - Chap. 4
    - Sec. 5(3) City Council Powers to prevent disturbance
    - (24) to remove nuisances
- Code of Ordinances
    - Chap. 240 - Noise Control (to take effect Sept. 24, 1971)
        - Sec. 240.010 Declaration
        - Sec. 240.020 Noise Prohibited
        - Sec. 240.030 Measurement of Noise
        - Sec. 240.040 Construction Equipment
        - Sec. 240.050 Outdoor Implements
        - Sec. 240.060 Motor Vehicles
        - Sec. 240.070 Preservation of other remedies
        - Sec. 240.080 Severability
        - Sec. 240.090 Definitions
    - Zoning Code
        - Sec. 251.216(7) Air Conditioning Condensers
        - Sec. 284.051 Performance Standards-Noise Generally
        - Sec. 285.051 Noise in M1 Districts

- Licensing
- Chap. 352 - Broadcasting Vehicles
  - Sec. 352.080 Limits on Sound
- Chap. 375 - Juke Boxes
  - Sec. 375.060 Noise Restricted
- Traffic Code
  - Sec. 414.070 Unnecessary Noise from Motor Vehicles
  - Sec. 417.350 Sirens
  - Sec. 417.360 Mufflers
- Criminal Code
  - Sec. 609.74 Public Nuisance
  - Sec. 609.745 Permitting Public Nuisance
- Petty Offenses
- Chap. 875 - Noise
  - Sec. 870.060 Breach of the peace
  - Sec. 870.061 Noise in Residential Areas
  - Sec. 875.010 Unnecessary Noise or Odor
  - Sec. 875.020 Automobile Horns
  - Sec. 875.030 Sound Amplifying
  - Sec. 875.040 Advertising by Public Address System
  - Sec. 875.050 Zones of Quiet
- Chap. 876 - Fireworks
  - Sec. 876.010 Sale of Fireworks

City Charter
- Chap. 4, Sec. 5(3) City Council Powers to prevent disturbance
- (24) To remove nuisances

Missoula, Montana

City Ordinances
- Sec. 20-14.1 Mufflers required on motorized bicycles
- Sec. 20-22 Mufflers required on motor vehicles
- Sec. 21-28 Sound devices-Transportation through city
- Sec. 21-29 Same-Permit required

Nashville, Tennessee

City Code
- Sec. 3-1-9 Use of loudspeakers, bells, etc. in advertising
- Sec. 26-2-12 Sound not too audible on adjoining premises
- Sec. 27-1-70 Horns; unnecessary noise
- Sec. 27-1-71 Mufflers

Sec. 29-1-53 Placing on vehicle substance, animal, etc. which is nuisance or imperils health
Sec. 29-1-54 Radios, television, etc.
Sec. 29-1-60 Steam exhaust muffled

New Haven, Connecticut

City Code of Ordinances
Sec. 18-19 Noise

New Orleans, Louisiana

City Code
Sec. 42-42 Noise-Violent
Sec. 42-42.1 Noises Prohibited
Sec. 42-43 Noise-Blowing Whistles
Sec. 42-44 Same-Drums, horns, trumpets
Sec. 42-45 Same-Organ grinders
Sec. 42-68 Distrubance of Sunday worship by building contracts
Sec. 42-681 Construction noises-hours permitted

New York City, New York

Administrative Code
Chap. 18 Title A
Sec. 435-5 Unnecessary Noise (NIMLO)
Sec. 435-6 Sound amplification equipment
Traffic Regulations
Sec. 151 Horns
Health Code
Sec. 135.19 Department Powers
Dept. of Markets Rule 11 - Noise from Peddlars
Building Code
Subarticle 1208.0 Noise Control in multiple dwellings

Norfolk, Virginia

City Code
Sec. 29-6 Hospital Quiet Zones
Sec. 29-777 Mufflers
Sec. 29-778 Mufflers cut-outs illegal
Sec. 31-48 Noise Generally (NIMLO)

Ogden, Utah

Revised Ordinance Book
- Sec. 23-1-5 Sound Producing devices, use by vendor
- Sec. 23-1-20 Sound Producing devices, use by anyone
- Sec. 14-18-17 Mufflers
- Sec. 22-2-3 Noise Signs Prohibited
- Sec. 29-16-1 (n) Zoning-use regulations

Oklahoma City, Oklahoma

City Ordinance
- Sec. 93.01 Disturbing Public Peace
- Sec. 93.02 Disturbing Assemblies
- Sec. 93.03 Horns
- Sec. 93.04 Music Boxes-Bells
- Sec. 93.05 Loud Speakers
- Sec. 93.06 Offensive Noises
- Sec. 93.07 Breach of Peace
- Sec. 93.10 Unnecessary and Disturbing Noise (NIMLO)
- Sec. 93.11 Noises Prohibited (NIMLO)
- Sec. 93.12 Exceptions
- Sec. 93.14 Steam Whistles
- Sec. 93.16 Discharging Firearms

Omaha, Nebraska

No laws - letter of July 23, 1971 from Bryce Brasel
Administrative Assistant to the Mayor
Omaha, Nebraska

Park Ridge, Illinois

City Ordinances
- Chap. 8 - Noise Abatement
  - Sec. 14-8-1 to 14-8-3

Philadelphia, Pennsylvania

Code of Ordinance
- Chap. 10-400 - Noise
  - Sec. 10-401 Ash, Trash and Garbage Cans
  - Sec. 10-402 Building Construction
  - Sec. 10-403 Hospitals, Churches, Court Houses and schools
  - Sec. 10-404 Sound devices

- Sec. 10-405 Street Vendors
- Sec. 10-406 Vehicles
- Sec. 10-407 General Provisions
- Sec. 10-408 Penalties
- Sec. 6-401 Occupational and Industrial Hygiene

Dept. of Public Health Regulations Pertaining to Hearing Conservation

Phoenix, Arizona

City Code
Art. I

- Sec. 23-12 Unreasonably Loud and Disturbing Noise (NIMLO)
- Sec. 23-13 Noises detrimental to life and health (NIMLO)
- Sec. 23-14 Enumeration of loud, unnecessary noises (NIMLO)
- Sec. 23-15 Exemptions
- Sec. 23-17 Hospitals; quiet required

Pittsburgh, Pennsylvania

No formal program - letter of June 24, 1971 from
Dr. Frank B. Clack
Director, Allegheny County
Health Department
Pittsburgh, Pennsylvania

Pocatello, Idaho

Ordinance No. 1642 Loud, Unnecessary Noise

Portland, Oregon

City Ordinances

- Chap. 14.52 - Noise
  - Sec. 14.52.010 Creating Noise Prohibited (NIMLO)
  - Sec. 14.52.020 Acts declared violations (NIMLO)
  - Sec. 14.52.030 Acts in 14.52.020 declared nuisances
  - Sec. 14.52.040 Motorboats
  - Sec. 14.52.050 Public outcry
  - Sec. 14.52.060 Loading noisy material
- Chap. 16.28 - Equipment
  - Sec. 16.28.260 Horns
  - Sec. 16.28.290 Mufflers - Noises Prohibited

- Chap. 19.16 Harbors
  - Sec. 19.16.215 Making unnecessary noise
- Chap. 33.78 Heliport and Helistop Regulation
  - Sec. 33.78.040 Noise
- Zoning Ordinances
  - Each includes prohibition of uses objectionable due to noise

Providence, Rhode Island

No noise control in building or zoning code - letter of July 21, 1971 from Vincent DiMase, Director, Department of Building Inspection, Providence, Rhode Island

Richmond, Virginia

- City Code
  - Sec. 25-30 Unnecessary noise in operation of motor vehicles
  - Sec. 28-5 Noise near certain buildings
  - Sec. 25-202 Horns on motor vehicles
  - Sec. 25-203 Sirens, whistles, etc.
  - Sec. 25-204 Sirens or whistles on emergency vehicles
  - Sec. 25-222 Muffler required
  - Sec. 25-223 Muffler cut-out illegal
- Chap. 26 - Noise
  - Sec. 26-1 Enumeration of acts declared loud and disturbing, noise (NIMLO)
  - Sec. 26-2 Creating loud noise prohibited (NIMLO)
  - Sec. 26-3 Summons of persons violating chapter
- Art. II Sound Trucks and Sound Amplifying Equipment
  - Sec. 26-4 Definitions
  - Sec. 26-5 Restrictions on operations generally
  - Sec. 26-7 Exceptions
  - Sec. 26-6 Noncommercial use
  - Sec. 26-8 License for sound truck
- Art. 17 M-1 Light Industrial District Regulations
  - Sec. 42-54 Use Regulations

Rochester, Minnesota

- Zoning Ordinances
  - Art. 40 Performance Standards
    - Sec. 40.00 Compliance Required
    - Sec. 40.052 Noise

St. Louis, Missouri

City Code
Sec. 762.010 Disturbing religious worship
Sec. 762.020 Disturbing lawful assembly
Sec. 762.030 Public Disturbance of the Peace
Sec. 760.090 Building Operations on Sunday
Sec. 760.100 Noises near Schools, Hospitals, Churches, etc.
Sec. 760.110 Drum, loud speakers, etc.
Sec. 760.120 Band Music in streets
Sec. 760.130 Hand organs, etc. played for gain
Sec. 760.140 Use of bells, etc. to attract persons
Ordinance No. 54719 Regulation of Business of Vending

Salt Lake City, Utah

Revised Ordinances
Sec. 1-3115 Dogs which disturb neighborhood
Sec. 2-12-3 Aircraft engine run-up areas
Sec. 20-17-28 Noise Prohibited
Sec. 20-31-1, Sec. 20-31-12 Regulation of Sound Equipment
Art. 9
Sec. 172 Mufflers
Sec. 247 Unusual noises
Sec. 248 Increasing noise, devices forbidden
Sec. 249 Use of horn
Sec. 250 Quiet Zones

San Clemente, California

City Code
Sec. 16-13 Nuisance-Defined
Sec. 16-14 Same-Allowing Committing
Sec. 16-15 Same-Notice to Abate; Abatement by city
Sec. 16-22 Sound amplifying equipment - defined
Sec. 16-23 Same-Application for permit
Sec. 16-24 Same-Conditions of Use
Sec. 16-25 Same-Grounds for revocation of permit

San Francisco, California

Police Code
Chap. VIII
Sec. 43 Permits for use of loudspeakers or sound amplifying equipment

Sec. 44 "person" defined
Sec. 45 Exceptions
Sec. 46 Definitions
Sec. 47 Use of sound trucks
Sec. 47.1 Registration statement amendment
Sec. 47.2 Regulations for use
Sec. 48 Commercial advertising by sound truck
Sec. 49 Unnecessary Noise Authorized emergency vehicles
Sec. 50 Severability
Sec. 94 Horns

Santa Barbara, California

Municipal Code
- Chap. 9, 14- Operation of Vehicle containing Sound Amplifying Equipment
  - Sec. 9.14.010 Definitions
  - Sec. 9.14.020 Operation-Regulations
  - Sec. 9.14.030 Penalty
- Chap. 9.16 - Noise
  - Sec. 9.16.010 Generally
  - Sec. 9.16.020 Radio loudspeaker-Sound amplification
  - Sec. 9.16.025 Sound Amplification in public parks and places
  - Sec. 18.08.200 Noise abatement at airport

Scottsbluff, Nebraska

City Ordinances
- Sec. 1-201 Aircraft
- Sec. 8-122 Fireworks
- Sec. 13-118 Combustion engines, mufflers
- Ordinance No. 1668 Quiet Zones

Scranton, Pennsylvania

General Offenses Code
- Sec. 733.01 General Nuisances
- Sec. 733.02 First Class Nuisances
- Sec. 733.03 Second Class Nuisances
- Sec. 733.04 Third Class Nuisances
- Sec. 733.05 Fourth Class Nuisances
- Sec. 733.99 Penalty

Seattle, Washington

City Ordinances

Chap. 12.82 - Noise

Sec. 12.82.010	Definitions
Sec. 12.82.020	Unlawful acts or omissions
Sec. 12.82.030	Horns
Sec. 12.82.040	Exhausts
Sec. 12.82.050	Mismanagement of Vehicles
Sec. 12.82.060	Loading, unloading or opening of boxes
Sec. 12.82.070	Blowers
Sec. 12.82.080	Whistles
Sec. 12.82.090	Loud speakers, amplifiers for advertising
Sec. 12.82.100	Radios, television, etc.
Sec. 12.82.110	Yelling, shouting, etc.
Sec. 12.82.120	Domestic pets
Sec. 12.82.130	Tools
Sec. 12.82.140	Hawkers, peddlars
Sec. 12.82.150	Sirens
Sec. 12.82.160	Exceptions
Sec. 12.82.170	Penalty
Sec. 12.84.010	Hospital Zones

Sioux Falls, South Dakota

City Ordinances

Sec. 9.202	Disorderly conduct
Sec. 9.203	Disturbing the peace
Sec. 9.701	Discharging fireworks
Sec. 9.702	Sale of Fireworks
Sec. 9.703	Discharging firearms
Sec. 9.807	Musical instruments in public places
Sec. 9.1001	Public Nuisances Defined; remedy
Sec. 9.100s	Removal and Abatement
Sec. 11.1004	Firearms in public parks
Sec. 11.1008	Disorderly conduct in parks

Traffic Code

Sec. 13.105	Zones of Quiet
Sec. 13.131	Muffler

Zoning Ordinance

(11) M-1 Light Industrial District

Stowe, Vermont

No laws governing noise - letter of William M. Johnstone
Town Clerk
Stowe, Vermont

Toledo, Ohio

Municipal Code
    Chap. 3 - Regulation and Control of Pollution
        Sec. 3-60-31 Noise

University Heights, Ohio

General Building Code
    Chap. 1613 - Air Conditioning Systems
        Sec. 1631.01 Definition
        Sec. 1631.02 Compliance Required
        Sec. 1631.03 Permit required; fee
        Sec. 1631.04 Existing Systems
        Sec. 1631.05 Enforcement; Appeals
        Sec. 1631.99 Penalty

Washington, D.C.

Traffic and Motor Vehicle Regulations
        Sec. 99.1 Excessive Idling of Vehicles
        Sec. 143 Horns
        Sec. 144 Mufflers
        Sec. 153(e) No unnecessary noise
    Police Regulations
        Art. 6 Sec. 1 - Mechanical devices for creation of sound
        Sec. 2 Same-for advertising
        Sec. 2(a) Zones of Quiet
        Sec. 3 Musical Instruments
        Sec. 4 Circuses, rodeos, etc.
        Sec. 6 Noise Generally (NIMLO)
        Sec. 7 Loud Noises at Late Hours
        Art. 18, Sec. 1 - Barking animal
        Sec. 9 Fowl
        Art. 25 Sec. 14 - Building Construction
        Art. 29 Sec. 14 - Mufflers on Boats
    Zoning Ordinances
        Sec. 6101.51 C-M Districts-sound volume limits
        Sec. 6.102.51 M Districts sound volume limits

White Plains, New York

City Ordinance Regulating Unnecessary and Annoying Noises and Harmful Sounds

- Sec. 1 Legislation Determination
- Sec. 2 Definitions
- Sec. 3 Noise generally (NIMLO)
- Sec. 4 Enumeration of acts (NIMLO)
- Sec. 5 Sound devices near public places for advertising purposes
- Sec. 6 Sound devices near public places for non-commercial purposes
- Sec. 7 Exemptions
- Sec. 8 Penalty
- Sec. 9 Severability

Wichita, Kansas

City Code

- Traffic Code
    - Sec. 11.60.230 Horns-Sirens
    - Sec. 11.60.240 Mufflers
- Chap. 5.58 - Noise
    - Sec. 5.58.010 Loud and unnecessary noise (NIMLO)
    - Sec. 5.58.020 Same-Enumerated list of unnecessary noises
    - Sec. 7.40.040 Nuisances
    - Sec. 7.40.050 Abatement or suppression of nuisances
    - Sec. 28.04.020 Noise Standards for Home Occupation

Wilmington, Delaware

City Code

- Sec. 39-52 Unnecessary Noise Generally (NIMLO)

2 ANALYSIS OF EXISTING LEGAL REGULATORY STRUCTURE FOR NOISE ABATEMENT AND CONTROL

2.1 LEGAL BASIS FOR NOISE ABATEMENT AND CONTROL THROUGH PRIVATE ACTIONS

2.1.1 Private Actions: Private Sector Noise Sources

Environmental noise has sometimes been characterized as a "local problem." This is substantially correct to the extent that the effects of noise must be viewed as related to particular social contexts of participants, social values, institutions and activities within specified geographical areas. This characterization is not necessarily correct with respect to the need for or authority to control "unwanted, disturbing sound."[1] Control and effects are related. The effects sought to be regulated (and the sources thereof) are the essential means for specifying the "problem." Whether particular effects can legally or most effectively be regulated at the Federal, State, Regional or local levels is a matter which to some extent has been resolved through Constitutional distribution of powers and by past and current practices. But many aspects of a complete regulatory configuration for the abatement and control of environmental noise remains to be determined.

Environmental noise is not a new problem.[2] From this general observation Spater concludes: "As has so often been the case in the history of the law, the story of noise and the law is not one of the development of new principles to fit new noises, but the application of established principles to solve old problems arising in somewhat different forms."[3] This, however, is an over-simplification as the subsequent analysis will show. Yet it is correct that control over noise has in the past largely been left to the initiative of individual complainants. The more conventional theories for abatement and control of noise in the judicial arena have been: nuisance, physical trespass, "inverse condemnation," and "constitutional damaging."[4] Local orddinances have undertaken to provide a legislative-administrative means of controlling excessive noise.[5] Two major principles, according to the Restatement of the Law of Torts, have governed the evolution of the law in this area:

> First, each person must put up with a certain amount of annoyance, inconvenience and interference.
>
> Second, in determining the amount of annoyance, inconvenience and interference that must be tolerated, the gravity of the harm to the complainant should be weighed against the utility of the conduct of his troublesome neighbor.[6]

The Report of the Panel on Noise Abatement to the Commerce Technical Advisory Board on The Noise Around Us[7] comments on the second principle as follows:

> In other words, courts and legislatures are called upon to weigh the harm that is being caused to the plaintiff (claimant) against the reasonableness of the defendant's conduct. Also to be considered are the detrimental

> effects, including considerations such as safety and cost, that would be caused to the defendant (and sometimes to the public) if the defendant were forced to discontinue the activity that produces the disturbance.[8]

In further elaboration on the "gravity-utility rule" Spater states:

> When an injunction is sought, the opposing elements on the scale are weighed against each other. When damages are sought and proved, the question is largely whether the defendant's conduct is reasonable.[9]

On the nuisance theory, the plaintiff can recover damages if the noise generated by the defendant results in a decrease in the value of plaintiff's property,[10] sometimes described as a "substantial interference" with the use of and enjoyment of land.[11] The test of "substantial interference" by the noise source is the effect the alleged noise would have on a "normal person of ordinary sensibilities."[12] In weighing the social utility of the noise-maker's conduct against the gravity of the harm to the plaintiff, the court must decide what is "unreasonable" in the context of the particular case. Critical factors may include whether the noise occurs during the day or at night, the suitability of the activity producing the noise to the particular locality and needs of the community, and whether the complainant occupied the land prior to or subsequent to the commencement of the alleged noise.[13]

The prospects for injunctive relief as contrasted with an action for damages depend upon several factors. For example,if the noise producing activity is one which is of substantial benefit to the community, economically or otherwise, and the burden imposed upon the plaintiff is not substantially more severe than that imposed upon the public at large, then an injunction is not likely to issue. The plaintiff will be left to remedy of damages at most.[14] The plaintiff stands in a stronger position if he undertakes to enjoin the noise producing activity prior to its construction or activation and the investment of substantial resources by the defendant. Spater states that "Once a business is under way, a noise that causes a substantial decrease in the value of plaintiff's property or a material discomfort to plaintiff will be enjoined: (a) if the annoyance is due to poor design or improper operation of defendant's facility and can be abated by the adoption of an improved design or operation, but the improvement must be one that is commercially feasible, or (b) if the activity creating the noise was established in a neighborhood obviously inappropriate for the activity."[15]

Deficiencies of the nuisance suit as a means of effective environmental noise abatement are apparent. Private litigation based on this theory will normally arise after the noise producing facility has commenced operations and a substantial investment made. In such instances, the court is likely to consider the benefit of the activity to the community to far outweigh the annoyance caused to nearby land owners.[16] Hence, unless the noise is excessive to the point of being unbearable and the offended land owner has some special argument in his favor - such as a recently increased level of noise intrusion from the source which it is "commercially feasible" to terminate - most offended persons will not consider the cost and effort of a nuisance suit worth the prospective benefit.[17] Further, nuisance suits are clearly an inadequate remedy where the noise eminates from such sources as vehicular traffic wherein the sources are multiple and largely unidentifiable.[18] A similar difficulty confronts the prospective plaintiff where the noise level results from a number of different types of sources (vehicular traffic, construction, sound trucks, etc.) since the problem arises of apportioning damages among the offending noise producers even if all are identified.[19] In some circumstances, class actions may provide a means of amplifying the leverage of the plaintiff's position in nuisance suits, but this procedural technique does not eliminate many other weaknesses in this remedial approach.[20]

Furthermore, this general conclusion tends to hold whether nuisance suits are brought under the various precedents developed in the common law of "nuisance"[21] or brought pursuant to general statutory authority covering harm from excessive noise sources.[22]

In a recent paper by Professor Milton Katz involving primarily tort actions as means of controlling environmental quality,[23] he discusses the "controversial New York case" of Boomer v. Atlantic Cement Co., Inc.,[24] in terms of the considerations which are influential in such judicial determinations:

> The Atlantic Cement Company operated a large cement plant near Albany. Seven neighboring land owners filed suit against the Company complaining of injuries to their property from dirt, smoke and vibrations arising in the Company's operations. The plaintiffs sought an injunction. The Court of Appeals of New York recognized that a socially satisfactory resolution of the competing interests in the control of pollution and in the maintenance of production and employment in the defendant's plant would involve new technical facilities and methods to curb the pollution while maintaining the production and employment. A majority of the court declined to give effect to a requirement of new research through a decree in equity. To the majority, it seemed "apparent that the amelioration of air pollution [would] depend on technical research in great depth; on a carefully balanced consideration of the economic impact of close regulation; and of the actual effect on public health. It [would be] likely to require massive expenditure and to demand more than any local community can accomplish and to depend on regional and interstate controls." A dissenting judge nevertheless insisted that the difficulties stressed by the majority did "not mean that better and more effective dust control devices could not be developed within" a time which might be allowed by the court to the defendant to abate the pollution. He argued that the court should "enjoin the defendant cement company from continuing the discharge of dust particles upon its neighbors' properties unless, within eighteen months, the cement company abated this nuisance." The dispute between the majority and the dissent is illuminated by a finding previously made in the litigation that the defendant company had installed in its plant "the most modern dust control devices available." The disagreement among the judges plainly reflected an

> ambiguity in the word "available." To the majority, the word signified commercially available, readily purchasable on the market. In the view of the dissenting judge, however, better dust control devices should be regarded as "available" if they were within the capacity of modern technology and science to design through a reasonably intelligent and energetic program of research over a reasonable period of time.[25]

Professor Katz states that the "usefulness of a private tort action against a company for the purposes of . . . environmental protection (as distinguished from the immediate advantages or disadvantages to the parties litigant) will turn on the changes in industrial and technical practice that may be expected to result from the action."[26] In a judgment for damages the cost of pollution will be transferred from the injured plaintiff to the enterprise that caused it. In short, the amount of damages represents a previously "external cost" that has been "internalized" by the damage award. He notes that in the past it has been standard business practice to treat industrial pollution as external costs or social costs which have not been "taken into account in ordinary business calculations of income and expense.[27] He amplifies:

> They have been excluded from the regular cost-benefit calculations of business and treated as "external costs" not for reasons inherent in the nature of things nor derived from the fundamentals of economics, but because the legal system has so provided. The incidence of a cost is determined by the legal order. Damage to the community caused by waste products will be a "social" and "external" cost only if and to the extent that the legal system may so decree. The legal system may alter or maintain the incidence of a cost by recognizing, or

> declining to recognize, a cause of action in tort against the company. It may enable the persons involved to adjust or modify the incidence of cost, or nullify their efforts to do so, by giving effect, or refusing to give effect, to agreements among them.[28]

Professor Katz interprets the practical consequences of a tort judgment to be that the damage award in theory "permits the defendant to pollute the plaintiff's air, water, or land if and as long as the defendant is able and willing to pay the cost, internalized by the judgment."[29] He notes that in the broader social context such judgments are useful primarily to the extent they serve as an incentive to the defendant to apply new managerial methods or technological innovations.[30] After examining the alternatives open to the defendant faced with an injunction, Professor Katz comes to the conclusion that "From the point of view of sufferers from pollution, there are serious obstacles to the effective use of private tort actions against the source enterprises under existing law."[31] He goes on, however, to suggest measures for increasing the effectiveness of tort actions:

> To an important degree, the obstacles and shortcomings can be mitigated by remedial and supplementary legislation (as well as by incremental judicial improvement). Such legislation might provide new bases for standing to sue in nuisance cases; facilitate proof of causation; facilitate the proof and computation of damages; facilitate the apportionment of damages among multiple defendants; make it possible to cover some of the real costs of litigation incurred by plaintiffs; energize proceedings to abate public nuisance by adding a private lever to the machinery of a public nuisance proceeding; incorporate the general public interest

in the environment into the criteria for adjudicating a claim of private nuisance based upon pollution; and introduce a duty to use the best available technology into the balance of factors by which a nuisance action is determined, making it clear that availability is to be determined not only by the commercial market but also and especially by the reach of contemporary technology and science through a reasonable research effort.[32]

2.1.2 Private Actions: Government Sector or Government Authorized Noise Sources

The environmental noise problem is in large measure a product of governmental activities or of government authorized activities such as railroads, commercial aircraft, interstate motor freight carriers, etc.[33] Spater sets forth two legal principles which are here relevant to noise abatement and control through private action:

> There is, first of all, the well-recognized concept of sovereign immunity - that the government is not liable for any of its acts except those for which recovery has been expressly provided. Almost inextricably intertwined with that concept is the second principle that members of the public shall bear without redress certain of the burdens that arise from action which the government has taken or has authorized in the common interest.[34]

The second principle is more relevant to the previous discussion so will be discussed first. It forms the basic rationale for the doctrine of "legalized nuisance" which has served as a formidible defense to nuisance actions and suits for injunctions.[35] Tondel has stated this doctrine as follows:

> (W)here a public or quasi-public enterprise, like a railroad, or a power or gas works, or a sewer system, or any irrigation system, or thruway or an airport, or the like, is expressly authorized by legislation, nuisance claims that arise out of its proper operation are to be denied. The theory is that even if the activity in question would, if privately conducted, constitute a nuisance, it has been legalized by the legislative body which, within constitutional limits, authorized the particular conduct on behalf of the public.[36]

In the Supreme Court case of Richards v. Washington Terminal[37] the plaintiff, who resided near the defendant's railroad track and tunnel, brought an action to recover property damages on the theory of nuisance, i.e., that he suffered injury from the noise, vibration, and smoke of passing trains including "cracking the walls. . . breaking glass in the windows, and disturbing the peace and slumber of the occupants" and from the gas and smoke forced on the plaintiff's property from the tunnel by a fanning system.[38] The activities and facilities of the defendant had been authorized by the Congress. It was not alleged that the trains were negligently constructed, operated, or maintained. Spater comments as follows:

> The Court held that the plaintiff, like all other property owners along a railroad right-of-way, was required to bear without redress the amount of noise, vibration, and smoke incident to the running of the trains. However, the plaintiff was entitled to compensation to the extent he was damaged by the fan arrangement which artificially concentrated gas and smoke on the plaintiff to a degree not shared by other property owners, "and this, without, so far as appears, any real necessity existing for such damage."[39]
>
> The general conclusion to be drawn from Richards v. Washington Terminal is that under federal law no right of action exists in private property owners for noise made by an entity functioning under authority of the government (and, a fortiori, for noise made by the government itself) even though the noise may cause a decline in the value of affected property. In such circumstances both damages and equitable relief are denied.[40]

Kramon notes that the defense of "legalized nuisance" has been frequently applied in aircraft noise cases,[41] and the Report on The Noise Around Us comments with respect to this doctrine:

> Mr. Tondel states that a survey of all the public airport cases in the last ten years shows only two cases in which the nuisance theory was considered a proper basis for recovery. Thus, he concludes that this theory, although expressed and referred to as such in most complaints in this field, has had little success.[42]

In those situations wherein the government is the manager of facilities or the operator of activities producing noise or has formally sanctioned the operation of facilities or activities by private participants or entities, resort to the theory of a constitutional "taking" has been increasingly employed as an alternative to a nuisance suit.[43] The Fifth Amendment to the U. S. Constitution provides that "private property (shall not) be taken for public use, without just compensation." Hence, if a "taking" can be proved, then the concept of "inverse condemnation"[44] can be employed "to circumvent the barrier presented by sovereign immunity."[45] What constitutes a "taking" is, of course, the pivotal question. Presumably, under the common law ad coelum theory that "the claim of title to a landowner's property extends to the universe above, as well as to the boundaries of the land below,"[46] the intrusion of an aircraft into the airspace over a particular landowner's property would involve an actionable physical trespass. However, the Federal Aviation Act of 1958, provides:

> There is hereby recognized and declared to exist in behalf of any citizen of the United States a public right to freedom of transit through the navigable airspace of the United States.[47]

and defines "navigable airspace" as that

> . . . above the minimum altitudes of flight prescribed by regulations issued under this chapter, and shall include airspace needed to insure safety in take-off and landing of aircraft.[48]

Hence, the question arises as to whether an aircraft flying above a landowner's property will, under any circumstances, be considered a physical trespass and, if so, whether such trespass will amount to a constitutional taking. Assuming that under some circumstances the flight of an aircraft above such property will be considered a taking, the precise question here is whether noise alone emitted from the aircraft will be deemed a taking.

The two Supreme Court cases of United States v. Causby[49] and Griggs v. Allegheny County[50] have been interpreted by most commentators to stand for the proposition that under certain circumstances noise from aircraft flying overhead can constitute a compensable taking.[51] In the Causby case military aircraft regularly flew over the plaintiff's land at a height of approximately 83 feet. The Court stated that: "The superadjacent air space at this low altitude is so close to the land that continuous invasions of it affect the use of the surface of the land itself."[52] In the Griggs case commercial aircraft regularly flew a path which cleared plaintiff's chimney by only 11 feet.[53] Whereas in Causby the United States Government was both the airport manager and the aircraft owner, in Griggs the question arose as to which party to sue: the airport manager (Allegheny County which was the operator of the Greater Pittsburgh Airport), the offending commercial airline, or the United States, which had certified the carrier and had approved the flight path. The plaintiff was successful in suing Allegheny County "under the Federal Constitution's 14th Amendment on the basis of a taking of an aviation easement over his land."[54] The report on The Noise Around Us states:

> In upholding the suit of the landowner, the Court reasoned that the airport operator must first acquire an easement of flight. The Court said that it is the airport operator who causes the interference, that the Government takes nothing, and that it is the local authority which decided whether or not to build an airport and where it is to be located.[55]

It should be noted, however, that Spater argues vigorously and at length to the effect that in both the Causby and Griggs cases that while "there existed both the invasion and exclusive use which are required to effect a displacement of the property owner," in neither case was the taking "based on the existence of an objectionable noise."[56] Spater states that it was the invasion and use of the plaintiff's airspace which constituted the taking.[57] In brief, it is Spater's position that "noise alone, no matter how aggravating . . . cannot constitute a taking as defined by the cases, i.e., a displacement of the landowner by a direct or physical invasion of the government."[58]

It would follow from this rather restricted concept of a "taking" that an overhead flight would be a precondition to recovery under this theory. The element of "physical invasion" as a prerequisite to a "taking" has continued to exert strong influence with some courts. In Batten v. United States[59] the court stated that "We are cited to no decisions holding that the United States is liable for noise, vibration, or smoke without a physical invasion."[60] The implication of this statement is that even if noise alone from an over-flying plane could be considered as sufficient interference with the landowner's use and enjoyment of his property to constitute a taking, adjacent landowners - laterally displaced from the flight path - could not recover even if the actual damages resulting from the noise intrusion were similar or exceeded the harm inflicted on the property owner directly beneath the flight path.[61]

Some State courts, however, have adopted an approach which views a compensable taking as consisting "not in an appropriation of the landowner's property in a zone or column of airspace but rather in the creation of noise which substantially interferes with surface use and enjoyment."[62] This approach would seem more amenable to courts in those states whose constitutions do not follow the U.S. Federal-type Constitutional provision providing compensation for property "taken" for public use but which provide broader protection for the landowner under "taken or damaged" language.[63] Writing in 1965 with reference to the states having the "taken or damaged" provision, Spater found that most of these states had adopted the Richards v. Washington Terminal rule" that property owners adjacent to a right-of-way are required to bear without redress any depreciation in their property due to the noise resulting from its use."[64] He continued:

> Finally, the few cases that have been found dealing with the loud noises made by trucks and cars moving on modern high-speed expressways unanimously hold that there can be no recovery.[65]

Kramon, writing in 1970, seems to dispute in part this finding of Spater as indicated by the following quotation:

> The cases of United States v. Causby and Griggs v. Allegheny County have established that under certain circumstances noise from airplanes may constitute a compensable taking. There have also been a number of recoveries for takings by noise resulting from the construction and use of highways. In most of the latter class of cases there was conceded to be an exercise of eminent domain and the recovery for noise was sought as consequential damages incident to the taking.[66]

Even though the preponderance of judicial decisions up to the present time have rejected noise as a basis for recovery on the theory of a compensable taking, a few courts have reached a contrary result.[67] This incipient trend is to some extent a reflection of the growing concern with noise as an environmental problem and, more specifically, a reflection of increasing sensitivity to aircraft noise. Courts responsive to public demands to abate environmental noise would probably tend to adopt a concept of compensable taking which consists "not in an appropriation of the landowner's property in a zone or column of airspace but rather in the creation of noise which substantially interferes with surface use and enjoyment."[68] Two state courts have held that plaintiffs alleging that their property had been damaged by noise from aircraft not shown to have been negligently operated and which did not pass directly over their property could recover under a theory of compensable taking. In Thornburg v. Port of Portland[69] the Oregon Supreme Court (under a "taking for public use" constitutional provision) described a taking as follows in the context of aircraft noise intrusion:

> The idea that must be expressed to the jury is that before the plaintiff may recover for a taking of his property he must show by the necessary proof that the activities of the Government are unreasonably interfering with his use of his property, and in so substantial a way as to deprive him of the practical enjoyment of his land. This loss must then be translated factually by the jury into a reduction in the market value of the land.[70]

In the case of Martin v. Port of Seattle[71] the Washington court held (under a "taken or damaged" constitutional provision) that recovery could be had "when land of an individual is diminished in value for public benefit . . . ."[72] Spater criticizes these decisions saying that "both of these states had previously decided that damage from noise alone, in the absence of negligence, did not constitute compensable injury"[73] but notes that the earlier decisions had involved railroads, not airplanes.[74]

The trend toward recovery for noise intrusion is also illustrated by a number of cases involving the construction and use of highways.[75] However, the theory of inverse condemnation or compensable taking has its limits as a means of environmental noise abatement. It can be applied only to the sovereign or a sovereign-sanctioned activity. Further, as Kramon states, "even when the state is sufficiently implicated in the activity, it is necessary for the plaintiff to show an injury peculiar to himself and not simply that he must tolerate that degree of noise which is common to the community."[76] Courts are reluctant to decide for the plaintiff in such suits for reason that the potential reach of the doctrine seems limitless.[77] Put otherwise, the selection of a standard - what degree of noise should constitute a taking - presents serious difficulties.[78]

2.2 FORMAL AUTHORITY FOR GOVERNMENTAL CONTROL OVER NOISE SOURCES AND NOISE EFFECTS

The increasing magnitude of environmental noise intrusions and the obvious ineffectiveness of abating and controlling offensive noise sources through privately initiated suits has resulted in a variety of legislative prescriptions and programs at the Federal, State and local levels. The precise formal authority upon which such enactments supposedly rest is not always clear. However, as a general proposition, when a social problem becomes sufficiently severe, a doctrinal foundation for remedial action can be found.

At the Federal level there exists no "police power" as such but an effective police power has in fact been exercised through the application of certain specifically delegated powers such as the commerce clause, the taxing power, the postal power, and the war power.[79] Regulation under the commerce power has been extensive, especially with respect to the major modes of transportation which are the source of most environmental noise.[80]

At the State level there exists a well recognized "police power" flowing from the Tenth Amendment of the U.S. Constitution.[81] In Nebbia v. New York,[82] the Supreme Court stated that:

> Government cannot exist if the citizen may at will use his property to the detriment of his fellows. . .

> The power to promote the general welfare is inherent in government. Touching the matters committed to it by the Constitution, the United States possesses the power, as do the states in their sovereign capacity touching all subjects jurisdiction of which is not surrendered to the Federal government. . . .[83]

With respect to the scope of the police power the Supreme Court stated in Berman v. Parker:[84]

> Public safety, public health, morality, peace and quiet, law and order -- these are some of the more conspicuous example of the traditional application of the police power to municipal affairs. Yet they merely illustrate the scope of the power and do not delimit it.[85]

The exercise of the police power is subject to the limitations of due process as is the exercise of individual "liberty." Consider the following quote from the opinion of Chief Justice Hughes in West Coast Hotel Co. v. Parrish[86] wherein a State of Washington minimum wage law for women was attacked as a violation of the due process clause of the Fourteenth Amendment:

> The principle which must control our decision is not in doubt. The constitutional provision invoked is the due process clause of the Fourteenth Amendment governing the states, as the due process clause invoked in the Adkins Case governed Congress. In each case the violation alleged by those attacking minimum wage regulation for women is deprivation of freedom of contract. What is this freedom? The Constitution does not speak of freedom of contract. It speaks of liberty and prohibits the deprivation of liberty without due process of law. In prohibiting that deprivation, the Constitution does not recognize an absolute and uncontrollable liberty. Liberty in each of its phases has its history and connotation. But the liberty safeguarded is liberty in a social organization which requires the protection of law against the evils which menace the health, safety, morals, and welfare of the

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> people. Liberty under the Constitution is thus necessarily subject to the restraints of due process, and regulation which is reasonable in relation to its subject and is adopted in the interests of the community is due process. . . .[87]

This opinion also stated that "even if the wisdom of the policy be regarded as debatable and its effects uncertain, still the Legislature is entitled to its judgment."[88] Since the police power, as described by one opinion of the Supreme Court, extends "to all the great public needs,"[89] its exercise will be upheld if the legislature perceives a public need to be satisfied and the means selected is reasonably appropriate to the achievement of this purpose.[90] But the police power is subject to the further limitation that private property cannot be taken for public use without just compensation. What constitutes a taking in the context of police power applications by a state has occasionally posed difficulties for the courts. The controlling considerations are discussed in the following quotation from Pennsylvania Coal Co. v. Mahon:

> The general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking. It may be doubted how far exceptional cases, like the blowing up of a house to stop a conflagration, go -- and if they go beyond the general rule, whether they do not stand as much upon tradition as upon principle. . . In general it is not plain that a man's misfortunes or necessities will justify his shifting the damages to his neighbor's shoulders. . . . We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional

> way of paying for the change. As we already have said this is a question of degree -- and therefore cannot be disposed of by general propositions.[91]

Within the general framework of constitutional authority numerous legislative enactments have been taken at the Federal, State and local levels as noted in § 1 supra. Furthermore, the Report on The Noise Around Us states flatly:

> It would seem that legislation on the national,[91] state and local levels could thus be accomplished toward the end of controlling noise without serious problems of a constitutional nature arising.[92]

Nevertheless a number of legal and political problems do arise with respect to the distribution and exercise of power among entities in our Federal structure as noted in the next section.

2.3 DISTRIBUTION OF FORMAL AUTHORITY AMONG FEDERAL, STATE AND LOCAL JURISDICTIONS

2.3.1 Illustrative Cases and Materials Relevant to the Commerce Clause and the Police Power

Assuming the authority to impose effective controls over environmental noise, the question remains as to what level of government has authority to prescribe and apply regulatory measures to what noise sources under what sets of circumstances. There is, of course, the further question of which level of government might be most effective in applying certain types of noise controls, but this matter will be treated elsewhere.

This section is concerned primarily with the issue of formal authority. A series of cases which apply the Commerce Clause to situations in the transportation field will serve as a summary explication of the manner in which the distribution of authority over given activities has been made between the National level and the State-local level.

The first case presented the Supreme Court under the Commerce Clause of the Constitution was Gibbons v. Ogden,[93] which held a New York law providing for a State "steamboat monopoly" invalid and, in effect, upheld the right of Gibbons, operating under a coasting license obtained from the United States Government, to continue his scheduled interstate runs between New Jersey and New York. In their book on Cases in Constitutional Law the Cushmans say:

> The economic consequences of it in freeing a developing commerce from the shackles of state monopoly can hardly be overestimated; and it established for all time the supremacy of the national government in all matters affecting interstate and foreign commerce.[94]

In the case of Cooley v. The Board of Wardens of the Port of Philadelphia,[95] the Court undertook to determine whether the power of Congress to regulate foreign and interstate commerce was exclusive or whether it might be in part shared by the states. The Court adopted a rule which placed a segment of control in the states, the test being whether a particular subject or activity of commerce requires uniform national control or whether it is sufficiently local in character to permit State regulation. Legislation by Congress is, of course, in some instances "substantial evidence" of the need for uniform national control. In the Post-Civil War period, the expanding interstate railway system, which soon became transcontinental, posed problems which could not be adequately controlled by the separate states. In the Wabash Case,[96] the Supreme Court held State regulation over rates charged by interstate carriers to be void. In other words, in line with the Cooley doctrine, the setting of such rates was held to be a matter for national uniform regulation. A few months after the Wabash decision the Congress passed the Interstate Commerce Act (1887) and authorized the regulation of railroad rates by the Interstate Commerce Commission which was established by the Act.[97] There have been any number of important railroad cases decided subsequent to the Wabash case, as for example, Southern Pacific Co. v. State of Arizona,[98] in which the Supreme Court, relying again on the Cooley doctrine, held that the Arizona Train Limit Law (limiting train length) contravened the Commerce Clause of the Constitution. The Majority Opinion states in conclusion:

> The contrast between the present regulation and the full train crew laws in point of their effects on the commerce, and the like contrast with the highway safety regulations, in point of the nature of the subject of regulation and the state's interest in it, illustrate and emphasize the considerations which enter into a determination of the relative weights of state and national interests where state regulation affecting interstate commerce is attempted. Here examination of all the relevant factors makes it plain that the state interest is outweighed by the interest of the nation in an adequate, economical efficient railway transportation service, which must prevail.[99]

One of the leading cases on interstate highway regulation is South Carolina State Highway Department v. Barnwell Bros.,[100] which involved the following facts. By an Act of the General Assembly of South Carolina of 1933, use on the state highways of motor trucks and semi-trailer motor trucks whose width exceeded 90 inches and whose weight, including load, exceeded 20,000 pounds was prohibited. These limitations were more restrictive than those of most other states. Nevertheless, this Act was upheld by the Supreme Court. Though recognizing that "interstate carriage by motor trucks has become a national industry"[101] and that Federal monies had been applied toward construction and maintenance of the South Carolina highway system, the Court stated: "Few subjects of state regulation are so peculiarly of local concern as is the use of state highways."[102] There was no dissenting opinion, although Justices Cardozo and Reed took no part in the decision. In this connection it is instructive to note two passages from the Report of the Committee on Public Works of the U.S. Seante on S. 2658, March 27, 1968, Report No. 1026 on "Vehicle Weights and Dimensions":

> Until July 1, 1956, the regulation of motor weights and dimensions was a matter solely within the province of the individual States. The Federal-Aid Highway Act of 1956 established maximum permissible weights and widths for vehicles operating on the Interstate System. Though it constituted a departure from the policy of the past, this action was taken by the Congress in order to protect the Federal investment in interstate highways and to insure the safety of the traveling public. Pre-existing Federal-aid statutes were silent on the subject.[103]

The Report also states:

> The proposed legislation continues the congressional policy of providing limits regarding maximum permissible use of weights and dimensions on the Interstate System in order to adequately protect the Federal Investment. This determination is based on the condition that such maximums will be properly implemented and enforced by the States, which continue to bear the ultimate responsibility for permitting vehicles to operate within these weight and width ranges. The committee most emphatically reaffirms that the responsibility for legal maximum allowable limits and control of sizes and weights of vehicles operating on the Interstate System, as well as on all the other road systems of the United States, rests with the individual States.[104]

This brief review suggests that in many social problem areas regulation at the State level pursuant to the police power may come into conflict with a delegated national power (such as the Commerce Clause) or legislation based upon a delegated power. If a conflict is in fact found, then the national power will prevail pursuant to the Supremacy Clause of the Constitution. However, it is also established that there is "a residuum of power in the state to make laws governing matters of local concern which in some measure affect interstate commerce, or even to some extent, regulate it."[105]

Huron Portland Cement Co. v. City of Detroit[106] involved a criminal proceeding instituted in the Detroit Recorder's Court against the defendant for violation of the city Smoke Abatement Code as applied to ships owned by the defendant and operated in interstate commerce. Pertinent passages from the Supreme Court opinion state:

> In support of the claim that the ordinance cannot constitutionally be applied to appellant's ships, two basic arguments are advanced. First, it is asserted that since the vessels and their equipment, including their boilers, have been inspected, approved and licensed to operate in interstate commerce in accordance with a comprehensive system of regulation enacted by Congress, the City of Detroit may not legislate in such a way as, in effect, to impose additional or inconsistent standards. Secondly, the argument is made that even if Congress has not expressly pre-empted the field, the municipal ordinance "materially affects interstate commerce in matters where uniformity is necessary." We have concluded that neither of these contentions can prevail, and that the Federal Constitution does not prohibit application to the appellant's vessels of the criminal provisions of the Detroit ordiance.

> The ordinance was enacted for the manifest purpose of promoting the health and welfare of the city's inhabitants. Legislation designed to free from pollution the very air that people breathe clearly falls within the exercise of even the most traditional concept of what is compendiously known as the police power. In the exercise of that power, the states and their instrumentalities may act, in many areas of interstate commerce and maritime activities, concurrently with the federal government. Gibbons v. Ogden, 9 Wheat. 1, 6 L.Ed. 23; Cooley v. Board of Wardens of Port of Philadelphia, 12 How. 299. . . .
>
> The basic limitations upon local legislative power in this area are clear enough. The controlling principles have been reiterated over the years in a host of this Court's decisions. Evenhanded local regulation to effectuate a legitimate local public interest is valid unless preempted by federal action, Erie R.R. Co. v. People of State of New York, 233 U.S. 671;. . . or unduly burdensome on maritime activities or interstate commerce, State of Minnesota v. Barber, 136 U. S. 313; Morgan v. Commonwealth of Virginia, 328 U.S. 373; Bibb v. Navajo Freight Lines, Inc., 359 U.S. 520.
>
> In determining whether state regulation has been preempted by federal action, " the intent to supersede the exercise by the state of its police power as to matters not covered by the Federal legislation is not to be inferred from the mere fact that Congress has seen fit to circumscribe its regulation and to occupy a limited field. In other words, such intent is not to be implied unless the act of Congress, fairly interpreted, is in actual conflict with the law of the state." Savage v. Jones, 225 U.S. 501, 533 . . . .[107]

Somewhat similar constitutional issues arose in the case of American Airlines, Inc., et al., v. City of Audubon Park, Kentucky.[108] A summary of this decision which accurately reflects the opinion of the U.S. Court of Appeals, Sixth Circuit, states:

> A city passed an ordinance declaring it unlawful to operate an aircraft over the municipality below an elevation of 750 feet. The Federal Aviation Administration regulations applicable to the airspace in question provided a glide path approach to an

> adjacent airport at elevations of 442 feet down to 282 feet. Several airlines brought a declaratory judgment action against the city in the United States District Court for the Western District of Kentucky, Louisville Division, Henry L. Brooks, Ch. J., to have the ordinance declared invalid and to enjoin the city from enforcing it. A summary judgment declaring the ordinance unconstitutional and unenforceable was entered on a motion therefor, supported by uncontroverted affidavits. On appeal by the city, the United States Court of Appeals for the Sixth Circuit, in a per curiam opinion, affirmed the judgment of the trial court, holding, inter alia (1) that the provisions of the ordinance made it such that pilots operating the plaintiff's aircraft could not comply with the ordinance and with FAA regulations, (2) that enforcement of the ordinance would constitute an intolerable and undue burden on interstate and foreign commerce, (3) that the city had no power to regulate interstate and foreign air traffic in the manner set forth in the ordinance, and (4) that for these reasons the ordinance was unconstitutional and void and therefore unenforceable.[109]

The ALR Annotation accompanying the above summary of the American Airlines v. Audubon Park case states that the power of Congress over aerial navigation is not exclusive in all respects and adds:

> In fact, the Air Commerce Act of 1926, the Civil Aeronautics Act of 1938, and the Federal Aviation Act of 1958 recognize the sovereign powers of the states in enacting consistent legislation if the Federal Government has not acted in the particular matter.[110]

A few cases involving ordinances regulating either the flight paths or altitudes of aircraft have been held to be valid and reasonable exercises of the police power.[111] Other cases have held that ordinances regulating the flight or altitudes of aircraft are invalid, under the particular circumstances, in that the ordinances conflicted with Federal statutes.[112]

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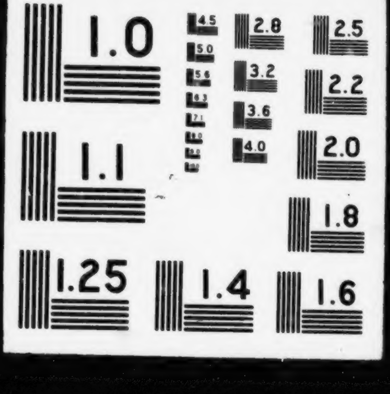

2.3.2 Illustrative Federal Environmental Quality Control Legislation

The evolving structure for regulatory controls in the area of environmental quality is reflected in several Acts of the Congress over the past few years. These Acts, in varying degree, presume to express national policy toward environmental quality, prescribe functions and institutional arrangements for the implementation of the stated policies, and normally provide in either explicit or general terms for the apportionment of authority and functions among entities at Federal, Regional, State, and local levels of government.

The general observation is probably warranted that this Federal legislation has attempted to express explicitly a strong national interest in the "quality of the human environment." Such national interest is further supported by the establishment of new agencies at the Federal level with prescribed authority, functions, and resources for effective implementation of legislative objectives. However, there is a parallel thrust which encourages Regional, State and local participation in the pursuance of this national purpose. Instead of delineating sharp divisions among governmental levels, the more recent legislation tends to promote cooperative efforts among all jurisdictions in order to gain control over social problem areas which involve a complex of interrelated factors among all levels of government.

The increasing emphasis being given to cooperative efforts among agencies at the same level of government, among the various levels of government, and between public sector and private sector entities is illustrated by provisions of the Water Resources Planning Act of 1965.[113] The Statement of Policy is as follows:

> In order to meet the rapidly expanding demands for water throughout the Nation, it is hereby declared to be the policy of the Congress to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by the Federal Government, States, localities, and private enterprise with the cooperation of all affected Federal agencies, States, local governments, individuals, corporations, business enterprises, and others concerned.

This Act provides for a Water Resources Council at the Federal level, for the establishment of River Basin Commissions, and for financial assistance to the States for comprehensive planning grant authorizations. As with most recent legislation pertaining to environmental quality and to natural resource conservation and use, this Act includes a jurisdictional provision. Sec. 3 (a) states:

> Nothing in this Act shall be construed --
>
> (a) to expand or diminish either Federal or State jurisdiction, responsibility, or rights in the field of water resources planning, development, or control; nor to displace, supersede, limit or modify any interstate compact or the jurisdiction or responsibility of any legally established joint or common agency of two or more States, or of two or more States and the Federal Government; nor to limit the authority of Congress to authorize and fund projects; . . .

Title I of the National Environmental Policy Act of 1969[114] presents a comprehensive statement of the national concern for and interest in environmental quality:

> Declaration of National Environmental Policy
>
> Sec. 101. (a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.
>
> (b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may --
>
> (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
>
> (2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
>
> (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

> (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
>
> (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
>
> (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources
>
> (c) The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.[115]

This Act also provided for the establishment of a Council on Environmental Quality[116] in the Executive Office of the President with the function among others of making an annual report to the President who is in turn to report to the Congress on:

> (1) the status and condition of the major natural, manmade, or altered environmental classes of the Nation, including but not limited to, the air, the aquatic, including marine, estuarine, and fresh water, and the terrestrial environment, including, but not limited to, the forest, dryland, wetland range, urban, suburban, and rural environment; (2) . . .[117]

Sec. 205 requires that the Council shall, in exercising its powers, functions, and duties under the Act:

> (1) consult with the Citizens' Advisory Committee on Environmental Quality established by Executive Order numbered 11472, dated May 29, 1969, and with such representatives of science, industry, agriculture, labor, conservation organizations, State and local governments and other groups, as it deems advisable; and
>
> (2) utilize, to the fullest extent possible, the services, facilities, and information (including statistical information) of public and private agencies and organizations, and individuals, in order

> that duplication of effort and expense may be avoided, thus assuring that the Council's activities will not unnecessarily overlap or conflict with similar activities authorized by law and performed by established agencies.

Title II of the Water Quality Improvement Act of 1970 having the short title of the "Environmental Quality Improvement Act of 1970,"[118] in addition to establishing an Office of Environmental Quality in the Executive Office of the President,[119] sets forth the following "Finding, Declarations, and Purposes":

> Sec. 202. (a) The Congress finds --
>
> (1) that man has caused changes in the environment;
>
> (2) that many of these changes may affect the relationship between man and his environment; and
>
> (3) that population increases and urban concentration contribute directly to pollution and the degradation of our environment.
>
> (b)(1) The Congress declares that there is a national policy for the environment which provides for the enhancement of environmental quality. This policy is evidenced by statutes heretofore enacted relating to the prevention, abatement, and control of environmental pollution, water and land resources, transportation, and economic and regional development.
>
> (2) The primary responsibility for implementing this policy rests with State and local governments.
>
> (3) The Federal Government encourages and supports implementation of this policy through appropriate regional organizations established under existing law.
>
> (c) The purposes of this title are --
>
> (1) to assure that each Federal department and agency conducting or supporting public works activities which affect the environment shall implement the policies established under existing law; and
>
> (2) to authorize an Office of Environmental Quality, which, notwithstanding any other provision of law, shall provide the professional and administrative staff for

> the Council on Environmental Quality established by Public Law 91-190.[120]

Some rather significant provisions of the Clean Air Amendments of 1970 Act[121] also reflect the comprehensiveness of the Federal government's concern and role in the achievement of a desired level of environmental quality. Section 103 of the Clean Air Act was amended by adding the following subsection:

> (F)(1) In carrying out research pursuant to this Act, the Administrator shall give special emphasis to research on short- and long-term effects of air pollutants on public health and welfare. In the furtherance of such research, he shall conduct an accelerated research program --
>
> (A) to improve knowledge of the contribution of air pollutants to the occurrence of adverse effects on health, including but not limited to, behavioral, physiological, toxicological, and bio-chemical effects; and
>
> (B) to improve knowledge of the short- and long-term effects of air pollutants on welfare.

Other new sections or amendments of this Act cover such matters as the requirement that the Administrator (of EPA) publish a list which includes each air pollutant which in his judgment has an adverse effect on public health or welfare,[122] the requirement that the Administrator prescribe national primary ambient air quality standards,[123] the establishment of standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in the judgment of the Administrator causes or contributes to air pollution which endangers the public health or welfare,[124] enforcement of motor vehicle emission standards,[125] motor vehicle and motor vehicle engine compliance testing and certification,[126] regulation of fuels,[127] and development of low-emission vehicles.[128] Title II of the Clean Air Act was amended by adding a new, Part B on "Aircraft Emission Standards" with provisions for the establishment of standards and the enforcement of standards.[129] A section on "State Standards and Controls" prescribes:

> Sec. 233. No State or political subdivision thereof may adopt or attempt to enforce any standard respecting emissions of any air pollutant from any aircraft or engine thereof unless such standard is indentical to a standard applicable to such aircraft under this part.

In this connection an amendment to the Clean Air Act pertaining to the "Retention of State Authority" provides:

> Sec. 116. Except as otherwise provided in sections 209, 211 (c)(4), and 233 (preempting certain State regulation of moving sources) nothing in this Act shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution; except that if an emission standard or limitation is in effect under an applicable implementation plan or under section 111 or 112, such State or political subdivision may not adopt or enforce any emission standard or limitation which is less stringent than the standard or limitation under such plan or section.

It is also of interest to note that the Clean Air Amendments of 1970 Act introduced new sections on "Emergency Powers"[130] and on "Federal Procurement"[131] designed to assist in the implementation of a more effective program to improve the quality of the Nation's air. Another new section provides for "Citizen Suits" which states in part:

> Sec. 304. (a) Except as provided in subsection (b), any person may commence a civil action on his own behalf--
>
> (1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency to the extent permitted by the Eleventh Amendment to the Constitution) who is alleged to be in violation of (A) an emission standard or limitation under this Act or (B) an order issued by the Administrator or a State with respect to such standard or limitation, or
>
> (2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty under this Act which is not discretionary with the Administrator.
>
> The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce such an emission standard or limitation, or such an order, or to order the Administrator to perform such act or duty, as the case may be.

The Airport and Airway Development Act of 1970[132] also contains a number of new provisions relating to the preservation of environmental quality, including:

> It is declared to be national policy that airport development projects authorized pursuant to this part shall provide for the protection and enhancement of the natural resources and the quality of environment of the Nation. In implementing this policy, the Secretary shall consult with the Secretaries of the Interior and Health, Education, and Welfare with regard to the effect that any project involving airport location, a major runway extension, or runway location may have on natural resources including, but not limited to, fish and wildlife, natural, scenic, and recreational

> assets, water and air quality, and other factors affecting the environment, and shall authorize no such project found to have adverse effect unless the Secretary shall render a finding, in writing, following a full and complete review, which shall be a matter of public record, that no feasible and prudent alternative exists and that all possible steps have been taken to minimize such adverse effect.[133]

The purpose in setting out illustrative Federal environmental quality control legislation is to suggest that evolving regulatory schemes for the abatement and control of environmental noise will be shaped not only by the authoritative Constitutional decisions apportioning Federal-State-Local power but also by emerging public attitudes as expressed in formal governmental policies toward environmental quality and recent legislation designed to institutionalize effective supporting programs. The implementation of the National Environmental Policy Act of 1969 requiring the submission of environmental impact statements on all "Federal actions" significantly affecting the quality of the human environment has given strong impetus to the consideration of environmental effects of public programs. The Airport and Airway Development Act of 1970 will certainly require consideration of the noise factor when new airports are located or existing facilities modified. Provision for "Citizen Suits" in Sec. 304 of the Clean Air Amendments of 1970 establishes a regularized channel for formally asserting complaints, a feature which should be considered in proposed "noise legislation."

Most of the new Environmental Quality legislation pays appropriate respect to State and local prerogatives as, for example, the Environmental Quality Improvement Act of 1970 which states that "The primary responsibility for implementing this policy rest with State and local governments." But a striking characteristic of the new legislation is the emphasis placed on cooperative efforts among agencies at the same level of government, among the various levels of government, and between public sector and private sector entities as illustrated by the Water Resources Planning Act of 1965. Whether this intent will mature into effective inter-entity working relationships is, of course, another matter. Since the Federal government is establishing national standards in given areas (for example, ambient air quality standards and standards respecting emissions of air pollutants from aircraft), it is to be anticipated that difficult problems of preemption or of conflict arising from other formal or informal actions may arise unless there is, in fact, dedicated and knowledgeable cooperation among the various levels of government.

2.4 DISTRIBUTION OF POWER AMONG FEDERAL-STATE-LOCAL JURISDICTIONS WITH RESPECT TO ENVIRONMENTAL NOISE ABATEMENT AND CONTROL

2.4.1 Regulatory Scheme for Aircraft Noise Abatement

A. Federal Aircraft Noise Abatement Policy and Regulation

Important aspects of the evolving pattern of distribution of authority among Federal-State-Local levels for environmental noise regulation has been shaped by legislation and other actions at the Federal level related to the abatement of aircraft noise. However, various State regulatory schemes as well as judicial decisions arising from complaints pressed under local ordinances have also contributed to the evolving pattern. Airport proprietors are also significant participants in the overall regulatory scheme.

The Report on The Noise Around Us in its discussion of Federal Legislation and Regulation asserts that pursuant to the Federal Aviation Act of 1958 requiring each particular model or make of aircraft to obtain an "airworthiness certificate" and an "air operating certificate" that:

> It is clear that the FAA has, . . . full power to prescribe air traffic rules for the "protection of persons and property on the ground," including prescription of air traffic rules in the interest of noise abatement.[134]

Michael Wollan, in his article on "Controlling the Potential Hazards of Government-Sponsored Technology"[135] indicates that despite the fact noise per se was not covered in the Federal Aviation Act of 1958, it was generally assumed by 1961, or earlier, that the FAA had the responsibility and authority to deal with aircraft noise standards:

> A year later (1961) when Congress made its first appropriation for research on SST feasibility, the FAA discussed more specifically the standards it would use to regulate the SST's engine noise. FAA's new administrator, Najeeb Halaby, told Congress: "We would try to see to it that the noise levels were tolerable to the community, or as tolerable as the then existing aircraft."[136]

It was not until the passage of the Department of Transportation Act of 1966[137] that statutory authority was granted pertinent to aircraft noise, but no explicit provision was made for regulation. §4(a) of the Act directs the Secretary of DOT to "promote and undertake research and development relating to transportation, including noise abatement, with particular attention to aircraft noise." That the authority for aircraft noise abatement was unclear prior to the passage of the Department of Transportation Act of 1966 is attested by Conclusion 12 and Recommendation 4 of the Report of the Office of Science and Technology Jet Aircraft Noise Panel, "Alleviation of Jet Aircraft Noise Near Airports" of March 1966:

> Conclusion 12. The Federal Government, through the FAA, has the responsibility for aircraft certification, air traffic control, and operational flight procedures near airports. The FAA, therefore, is the agency which should seek authority from the Congress (to the extent that it

> does not now have it) to formulate appropriate regulations as to noise potential in the design and operation of power-plant and aircraft. The FAA has not yet used or sought such authority because of doubts as to the availability of adequate quantitative criteria for measuring the subjective annoyance of aircraft noise at the individual and community levels.[138]

Further, the OST Panel Report states under Measurements & Standards:

> Recommendation 4. The FAA and/or NASA, using qualified contractors as necessary, establish and fund adequately an urgent program for conducting the physical,,psychoacoustic, sociological, and other research results needed to provide the basis for quantitative noise evaluation techniques and standards which can be used by the FAA, airport operators, and aircraft/engine manufacturers for aircraft hardware and operational specifications. Such programs should be developed in the light of and in cooperation with related work abroad, and should be aimed to converge as rapidly as possible on the development of nationally and internationally accepted noise evaluation techniques and standards which can be used by the FAA, airport operators, and aircraft/engine manufacturers for aircraft hardware and operational specifications. Such programs should be developed in the light of and in cooperation with related work abroad, and should be aimed to converge as rapidly as possible on the development of nationally and internationally accepted noise evaluation procedures and standards. These standards must be compatible with and a part of general national and international noise rating schemes aimed at preventing nuisance or detriment to public health.[139]

In May 1968, Mr. Robert F. Allnut, Assistant Administrator of NASA for Legislative Affairs, commented on the pending House Bill 3400 relating to aircraft noise abatement as follows:

> As might be expected, the interests and responsibilities of the interested agencies vary somewhat depending on the statutes under which they operate, but every possible effort has been made to coordinate and carry forward noise research and prevention work of those agencies.

> NASA's responsibility flows from its statutory duty to "contribute materially to . . . the improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical . . . vehicles." Funds for noise research have been regularly included in NASA's annual budgets and program authorizations and appropriations.[140]

The question of Federal authority over aircraft noise and sonic boom was directly considered in the Congressional hearings of 1968 leading to the enactment of §611, an amendment to the Federal Aviation Act of 1958. The Report of the House Committee on Interstate and Foreign Commerce (Report No. 1463 of May 23, 1968) stated in part with respect to "Background and Need for Legislation":

> The right to use the airspace over the United States in the operation of aircraft has long been established. Aviation has become an essential and widely approved part of our national transportation system. However, aircraft noise and sonic boom have few if any champions. Both noise and sonic boom are unwanted and unpleasant. At this stage of engine and aircraft development there are no easy nor ready solutions to the continuing and increasing problems. The committee does believe, however, that this legislation provides a needed framework within which solutions to these problems will be actively pursued.
>
> A subcommittee of this committee first held hearings on aircraft noise in September 1959 at the New York International Airport. The House of Representatives adopted House Resolution 420 in August of 1961 which specifically authorized the Committee on Interstate and Foreign Commerce to investigate the problem, and in February of 1963 the committee published the "Investigation and Study of Aircraft Noise Problems" (88th Cong., first sess. H. Rept. No. 36). Further research was needed then. Further research is still needed. Many technical achievements have been made, some in the reduction of noise level, but more must be done. It is insufficient to say that a 1968 engine is quieter than a 1963 engine if the 1968 engine nevertheless produces and intolerable level of noise.

> Over the last ten years we have had numerous panels of experts, with representatives from virtually all segments of the aviation industry, as well as from local governments and the Federal Government. Airport operators, manufacturers, air carriers and their associations, local port authorities, municipal groups, NASA, the Federal Aviation Administration, the Department of Housing and Urban Development, and the Department of Transportation have all made contributions looking toward solutions, particularly of the noise problem, but also many of them have been giving increasing attention to the sonic boom problem.
>
> The noise problem is basically a conflict between two groups or interests. On the one hand, there is a group who provides various air transportation services. On the other hand there is a group who live, work, and go to schools and churches in communities near airports. The latter group is frequently burdened to the point where they can neither enjoy nor reasonably use their land because of noise resulting from aircraft operations. Many of them derive no direct benefit from the aircraft operations which create the unwanted noise. Therefore, it is easy to understand why they complain, and complain most vehemently. The possible solutions to this demanding and vexing problem which appear to offer the most promise are (1) new or modified engine and airframe designs, (2) special flight operating techniques and procedures, and (3) planning for land use in areas adjacent to airports so that such land use will be most compatible with aircraft operations. This legislation is directed toward the primary problem; namely, reduction of noise at its source.[141]

The Report of the Senate Committee on Commerce (Report No. 1353, of July 1, 1968)[142] stated with respect to "Relation to Local Government Initiatives":

> The bill is an amendment to a statute describing the powers and duties of the Federal Government with respect to air commerce. As indicated earlier in this report, certain actions by State and local public agencies, such as zoning to assure compatible land use, are a necessary part of the total attack on aircraft noise.

In this connection, the question is raised whether this bill adds or subtracts anything from the powers of State or local governments. It is not the intent of the committee in recommending this legislation to effect any change in the existing apportionment of powers between the Federal and State and local governments.

In this regard, we concur in the following views set forth by the Secretary in his letter to the committee of June 22, 1968:

> The courts have held that the Federal Government presently preempts the field of noise regulation insofar as it involves controlling the flight of aircraft. Local noise control legislation limiting the permissible noise level of all over-flying aircraft has recently been struck down because it conflicted with Federal regulation of air traffic. American Airlines v. Town of Hemstead, 272 F. Supp. 226 (U.S.D.C., E.D., N.Y., 1966). The court said, at 231, "The legislation operates in an area committed to Federal care, and noise limiting rules operating as do those of the ordinance must come from a Federal source." H.R. 3400 would merely expand the Federal Government's role in a field already preempted. It would not change this preemption. State and local governments will remain unable to use their police powers to control aircraft noise by regulating the flight of aircraft.
>
> However, the proposed legislation will not affect the rights of a State or local public agency, as the proprietor of an airport, from issuing regulations or establishing requirements as to the permissible level of noise which can be created by aircraft using the airport. Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory.
>
> Just as an airport owner is responsible for deciding how long the runways will be, so is the owner responsible for obtaining noise easements necessary to permit the landing and takeoff of the aircraft. The Federal Government is in no position to require an airport to accept service by larger aircraft and, for that purpose, to obtain longer runways.

> Likewise, the Federal Government is in no position to require an airport to accept service by noisier aircraft, and for that purpose to obtain additional noise easements. The issue is the service desired by the airport owner and the steps it is willing to take to obtain the service. In dealing with this issue, the Federal Government should not substitute its judgment for that of the States or elements of local government who, for the most part, own and operate our Nation's airports. The proposed legislation is not designed to do this and will not prevent airport proprietors from excluding any aircraft on the basis of noise considerations.
>
> Of course, the authority of units of local government to control the effects of aircraft noise through the exercise of land use planning and zoning powers is not diminished by the bill.
>
> Finally, since the flight of aircraft has been preempted by the Federal Government, State and local governments can presently exercise no control over sonic boom. The bill makes no change in this regard.[143]

A Notice of Proposed Rule Making on "Noise Standards: Aircraft Type Certification," was issued by the Department of Transportation (FAA) on January 3, 1969,[144] pursuant to Public Law 90-411 enacted July 21. 1968, which added a new Section 611, Control and Abatement of Aircraft Noise and Sonic Boom, to the Federal Aviation Act of 1958.[145]

> Sec. 611. (a) In order to afford present and future relief and protection to the public from unnecessary aircraft noise and sonic boom, the Administrator of the Federal Aviation Administration, after consultation with the Secretary of Transportation, shall prescribe and amend standards for the measurement of aircraft noise and sonic boom and shall prescribe and amend such rules and regulations as he may find necessary to provide for the control and abatement of aircraft noise and sonic boom, including the application of such standards, rules and regulations in the issuance,

> amendment, modification, suspension, or revocation of any certificate authorized by this title.
>
> (b) In prescribing and amending standards, rules and regulations under this section, the Administrator shall --
>
> (1) consider relevant available data relating to aircraft noise and sonic boom, including the results of research, development, testing, and evaluation of activities conducted pursuant to this Act and the Department of Transportation Act;
>
> (2) consult with such Federal, State and interstate agencies as he deems appropriate;
>
> (3) consider whether any proposed standard, rule, or regulation is consistent with the highest degree of safety in air commerce or air transportation in the public interest;
>
> (4) consider whether any proposed standard, rule, regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply; and
>
> (5) consider the extent to which such standard, rule, or regulation will contribute to carrying out the purposes of this section.
>
> (c) In any action to amend, modify, suspend, or revoke a certificate in which violation of aircraft noise or sonic boom standards, rules, or regulations is at issue, the certificate holder shall have the same notice and appeal rights as are contained in section 609, and in any appeal to the National Transportation Safety Board, the Board may amend, modify, or reverse the order of the Administrator if it finds that control or abatement of aircraft noise or sonic boom and the public interest do not require the affirmation of such order, or that such order is not consistent with safety in air commerce of air transportation.

The Notice of Proposed Rule Making stated explicitly that:

> Senate Report 1353 on Public Law 90-411 states that, while other approaches to aircraft noise control must be thoroughly studied and employed, "the first order of business is to stop the escalation of aircraft noise by imposing standards which require the full

> application of noise reduction technology. . . ." (p.2) The type certification standards in this Notice are designed to implement this first order of business by concentrating on the aircraft that are most likely to raise aircraft noise levels in airport neighborhoods. These aircraft include subsonic transport category airplanes regardless of means of propulsion and subsonic turbojet powered airplane regardless of category.[146]

The quotation below from the Notice of Proposed Rule Making suggests that even modest measures at the Federal level would provide a basis for various participants within the aircraft noise context to move ahead with assessments and operational programs. It also outlines the authority for control which rests with various governmental entities and private participants.

> In summary, the proposals in this notice should be placed in broad perspective. This notice does not promise the immediate achievement of socially acceptable noise levels in airport neighborhoods where the responsible state or local governments have not, or cannot, act to achieve land use compatibility for their existing or planned airports. Further, this notice does not promise a Federal substitute for the actions that airport operators, as proprietors, can take and have traditionally and responsibly taken, to make their airports fit the particular needs of their locales, such as establishing conditions under which their airports and airport facilities may be used, including the issuance of specific noise ceilings. These limitations on this Notice reflect the statement of the Senate Commerce Committee, concerning Public Law 90-411, that "it is not the intent of the committee in recommending this legislation to effect any change in the existing apportionment of powers between the Federal and State and local governments. . . ."
>
> "The proposed legislation is not designed to prevent airport proprietors from excluding any aircraft on the basis of noise considerations. Of course, the authority of units of local government to control the effects of aircraft noise through the exercise of land use planning and zoning powers is not diminished by the bill."

> In his statement to the Subcommittee on Transportation and Aeronautics of the Committee on Interstate and Foreign Commerce of the House of Representatives on November 15, 1967, in support of H.R. 3400 and S. 707, which led to Public Law 90-411, the Secretary of Transportation indicated that approaches involving more than local community actions might require further legislation. Thus, he stated, "In the field of compatible land use, the Department is developing a computerized method of predicting aircraft noise exposure at airports. The methodology has been applied to three principal airports . . . and plans are under way to apply it to 29 conventional airports. This, in turn, will now enable HUD to inventory the land use at these airports. This noise exposure forecast land-use inventory will then be applied to or be applicable by the balance of the airports. As a result, we shall for the first time have a precise grasp of the actual magnitude of the problems of compatible land use projected through 1975. It will be on the basis of this understanding that any necessary legislation will be drafted and submitted enabling the Federal Government to assist, at long last, local communities in making the environment of the airport neighborhood one in which noise from aircraft does not generate noise from an outraged citizenry.
>
> In the meantime, this notice plays an important role by providing airport operators and state and local governments, as well as other concerned persons who are responsible for local noise control planning, with dependable, predictable noise parameters to be used as a basis for that planning. For example, local governments would be able to make administrative decisions covering zoning, general urban planning, highway and other transit system, schools, hospitals, parks, and recreation facilities on the basis of noise ceilings specified in the type certification regulations.
>
> Airport operators, as proprietors, would be able to base their actions on known noise levels substantiated during type certification. But under this notice, responsibility for all local noise control planning remains exclusively local.[147]

The foregoing policy guides for the allocation of authority for various functions among the governmental levels and for the exercise of certain regulatory functions incident to proprietorship provide a useful starting point for discussing the regulatory scheme for aircraft noise abatement. This initial policy framework, however, must be examined against the actual formal regulatory structure and accompanying practices which have evolved since 1968. Particular attention will be given to the authority of states, municipalities, and both State and Interstate Transportation or Airport Authorities to participate in the aircraft noise regulatory process. Explicit consideration will be given to the limitations on authority of such entities within the Federal structure, including the question of "preemption."

Under the Federal Aviation Act of 1958 the Administrator was authorized to control "inflight" operations.[148] In this connection Greenwald states that pursuant to Paragraph (C) of 49 U.S.C. 1348:

> "The administrator is further authorized and directed to prescribe air traffic rules . . . regarding the navigable air space . . . including rules as to safe altitudes of flight." Under its rulemaking authority the FAA has established "control zones" which encompass all of the navigable air space throughout the country. (Federal Aviation Regulations (FAR) Part 77 and 91). By a series of federal court decisions, navigable airspace has been made part of the public domain. A surface land owner does not own or have the right to control the "navigable airspace" above his property. Navigable airspace is that space which does not destroy the beneficial use of the land [U.S. vs. Causby, 328 U.S. 256 (1946)] and does not interfere with the use and enjoyment of the land [Griggs vs. Allegheny Airport, 363 U.S. 84 (1962) 49 U.S.C. §1304]. Interference with use and enjoyment can come from fly-over noise or from fly-by noise; fly-by

> noise is that which extends laterally from the flight path. [City of Jacksonville v. Schumann, 167 So. 295 (1969) (Cert. denied, U.S. Sup. Ct., 36 L.W. 3357)] 149

The FAA has the responsibility for the inspection and certifcation of civilian aircraft and for the promulgation and enforcement of aviation safety standards.[150] This means that its statutory responsibilities extend to the designation of performance standards and equipment requirements for commercial aircraft. The FAA also controls flight paths, including approach and takeoff patterns for major urban terminals. In accordance with new Section 611 of the Federal Aviation Act, the FAA was given the responsibility of prescribing standards for the abatement and control of aircraft noise and sonic boom. The rules developed from the Notice of Rule Making and subsequent hearings limit maximum noise level at takeoff, approach, and sideline to 108 EPNdB for the heaviest aircraft and to 102 EPNdB for approach and sideline and 93 EPNdB for takeoff noise from the lightest aircraft.[151] The new regulations apply only to sub-sonic aircraft and to aircraft for which certification applications were submitted subsequent to January 1, 1967.[152] Additional rules will be promulgated with respect to retrofitting sub-sonic jets and separate rules for VTOL's and STOL's.[153] The FAA objectives have been stated by Greenwald as follows:

> In its notice of the public hearing on New Part 36, FAA stated, "The noise floor of 80 EPNdB is proposed as an objective to aim for, and to achieve where economically reasonable, technologically practicable, and appropriate

> to the particular type design. It is recognized that this objective will not be appropriate for many current type designs. However, this objective is important because it makes it clear to all applicants that no increment of noise above 80 EPNdB can be considered acceptable, in and of itself, where it can be eliminated practically and reasonably. This figure is proposed as a reasonable boundary between noise levels that are high enough to interfere with communications and to obstruct normal life in homes or other buildings that are not designed with specific acoustical objectives and lower noise levels which, while not completely benign, nevertheless allow those activities to proceed. Where this goal can be reached in a given case, and can be justified as economically reasonable, technologically practical, and appropriate to the particular type design, the FAA does not intend to ignore this potential reduction.[154]

The effort of the FAA pursuant to §611 is by no means the exclusive contribution at the Federal level to the abatement and control of aircraft noise. The thrust of the FAA authority and action is toward abating noise at the source. But as previously indicated, there are numerous other means of abating the effects of aircraft noise and certain Federal legislation is directed toward this purpose. In the Report of the Airport Study Group of the Harvard Environmental Law Society it is stated:

> Federal Legislation. Recent federal legislation may provide tools for challenging unresponsive decision-making by industry, airport proprietors, and federal administrators. In 1964, Congress required airport operations such as Massport to assure the FAA that action had been or would be taken to restrict incompatible land uses adjacent to airports before they could receive grants for airport construction and improvements. The new Airport and Airway Development Act of 1970 further stipulates that no airport development project may be approved unless the proprietor certifies "that there is reasonable assurance

that the project will be located, designed, constructed, and operated so as to comply with appropriate air and water quality standards." The act also requires the sponsoring owner to hold public hearings to consider "the economic, social and environmental effects of the airport location and its consistency with the goals and objectives of such urban planning as have been carried out by the community."

These acts may have two effects. First, increasing reliance on federal grants and loans to finance capital improvements at air terminals should result in local decisions about airport location and expansion being forced into the public view. While the efficacy of public hearings before non-representative promotion agencies is dubious, at least the affected public will have notice of airport plans before final decision-making. A second, more interesting possibility is a direct challenge of the local agency's decision through the courts. The Development Act, like the National Environmental Policy Act of 1969 (NEPA), requires agency consideration of the environmental impact of proposed actions. Failure to give proper attention to ecological effects would constitute unreasonable and arbitrary action by the local airport owner as a governmental body. The question of who would have standing to challenge the local agency under these provisions remains a problem, however.[155]

B. State Aircraft Noise Regulation (Including Authorities)

Just how the participation of states, municipalities and airport authorities can be accommodated in the aircraft noise regulatory structure in view of the FAA's formal responsibilities and other environmental quality legislation at the Federal level has not yet been settled. Various methods have been adopted by the states to abate the serious effects of airport noise. For example, Massachusetts established the Massachusetts Port Authority (Massport) to develop air and maritime facilities in the Greater Boston area.[156] A recent study of the efforts of

Massport to effectively regulate airport noise asserts that the programs of Massport have not been particularly successful and further, that the State has been able to exercise little effective control over its instrumentality.[157] One finding is that Massport has not been fully responsible to the community with respect to the many adverse effects of promoting transportation. Suggestions of the study included:

> Though the state may be preempted from direct imposition of noise standards upon carriers, it does maintain general police powers and licensing authority over all public and private airports. The Commonwealth could condition the privelege of operating an airport upon the adoption of aircraft noise performance standards and regulations controlling ground operations, curfews, and other activities. To encourage compliance, these requirements should authorize substantial fines for each infraction by the airport operator. State legislation on noise standards, even if indirect, could raise the question of federal and state interstate commerce powers. Congress, the courts, and the FAA have taken the position that federal jurisdiction to impose noise control standards is not exclusive but is shared with the airport owner. The terminal operator has the duty to exercise this authority to meet noise problems as they apply to local conditions. Where a subordinate governmental body such as Massport, created by and subject to the state, has failed as an airport proprietor to use these powers, it can be argued that the state legislature has the responsibility to force the public proprietor to fulfill its duty to the community.
>
> The state also retains final authority to exercise or allocate planning and zoning measures. It could integrate the planning of a second airport and expansion of present facilities, by making the planning decisions of the designated agency binding on the Authority. Provision should be made for regional zoning of airport environs, or establishment of special noise encroachment zones, as well as acquiring and redeveloping areas with conflicting pre-existing uses.

> Unfortunately, neither federal nor state legislation has brought significant relief from the noise which has debilitated East Boston. Despite the current flood of proposals, legislative prospects are not encouraging. The airlines, Port Authority, and benefited industries sponsor an effective and organized lobby in the Legislature. Many representatives from other parts of the Commonwealth limit their concern to Massport's financial stability. Since noise and other pollution that accompanies airport operations do not touch their constituencies, these lawmakers do not give priority to airport legislation. The result is delayed and often diluted use of the state's legislative potential. Only one institutional channel remains - the courts.[158]

California has shown commendable leadership among the States in attempting to cope with the aircraft and airport noise problem in a systematic and comprehensive manner. Pursuant to Assembly Bill 645 of the 1969 Legislature, the State Department of Aeronautics has adopted noise standards which will take effect on December 1, 1971.[159] The Preamble states:

> The following rules and regulations are promulgated in accordance with Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code (Regulation of Airports) to provide noise standards governing the operation of aircraft and aircraft engines for all airports operating under a valid permit issued by the department. These standards are based upon two separate legal grounds: (1) the power of airport proprietors to impose noise ceilings and other limitations on the use of the airport, and (2) the power of the state to act to an extent not prohibited by federal law. The regulations are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the departments to work cooperatively to diminish noise. The regulations accomplish these ends by controlling and reducing the noise in communities in the vicinity of airports.[160]

A memorandum of November 13, 1970, explaining the noise standards, "An Introduction to the Adopted Noise Regulations for

California Airports,"[161] sets forth certain points in order "to aid the layman and concerned citizen in understanding what the standard is and will achieve." The standards were based on two points: 1) the level of noise acceptable to a reasonable person residing in the vicinity of the airport; and 2) due consideration of the economic and technological feasibility of complying with the standard. An "acoustic scale" was constructed for the purpose of including "all elements that add up to form the total aircraft noise environment around an airport." This CNEL scale, similar to others used for land use planning around airports, provides a means of determining a numerical value or contour for defining residential areas. The Standard indicates a noise contour ("noise impact boundary") inside which the noise environment is not suited for residential use.

The coordinating function is placed on the airport proprietor who, acting within his powers as landowner, can establish rules for the use of his airport which would exclude aircraft on the basis of noise and can regulate which aircraft use which runways during various parts of the day. It is recognized that the airport proprietor "does not have direct jurisdiction over flight paths at distances from the airport" but notes that those paths can "be influenced by preferential runway use."

Single event noise limits are to be enforced by the counties. Aircraft operators who violate the limits are subject to a $1,000 fine. The Memorandum continues:

> With the cooperation of local government and county airport land use commissions . . . to encourage compatible land use near the airport, it will be possible to preserve the utility of the airport to the community, while achieving environmental compatibility. The noise standard provides, for the first time, a structure for achieving this goal.
>
> In arriving at the limit value of Community Noise Equivalent level within which the noise is too high for residences, the available data on effects of noise on people was reviewed. These effects include disturbance of sleep, interference with speech communication, physiological stress reactions and the possibility of hearing loss. The most restrictive of these were used in arriving at the limits: sleep disturbance and speech communication. However, these factors only tell us something about limiting the magnitude of the noise, but not about limiting the number of flights. For that information, it was necessary to refer to two other kinds of information: the results of community questionnaire surveys about noise, and a collection of case histories of people's complaints and other actions about aircraft and other kinds of noise in their environment. From analyzing this kind of data, one can determine how much relative importance to place on the number of events and the magnitude of the noise per event.
>
> All of the foregoing factors have been considered in arriving at a limit CNEL value of 65 dB as the value to place on the noise impact boundary, based on the language in AB 645 regarding the "reasonable person residing in the vicinity of an airport." This value applies to all proposed new airports and must be achieved by the end of 1985 by all existing airports as well. For a large, busy metropolitan airport with heavy jet traffic, the noise impact boundary corresponding to CNEL = 65 dB would encompass many square miles of land. Therefore, in compliance with the second requirement of AB 645 -- that consideration be given to the economic and technological feasibility of compliance -- a schedule for gradual noise reduction at existing airports (ending in CNEL - 65 dB by the end of 1985) is established in the regulation.[162]

The following sections of the California Regulations on Noise Standards undertake to provide general guides to the apportionment of authority among Federal, State, and local entities:

> 5001. Liberal Construction. This subchapter shall be liberally construed and applied to promote its underlying purposes which are to protect the public from noise and to resolve incompatibilities between airports and their surrounding neighbors.
>
> 5002. Constitutionality. If any provision of this subchapter or the application thereof to any person or circumstance is held to be unconstitutional, the remainder of the subchapter and the application of such provision to other persons or circumstances shall not be affected thereby.
>
> 5003. Provisions Not Exclusive. The provisions of this subchapter are not exclusive, and the remedies provided for in this subchapter shall be in addition to any other remedies provided for in any other law or available under common law. It is not the intent of these regulations to preempt the field of aircraft noise limitation in the state. The noise limits specified herein are not intended to prevent any local government to the extent not prohibited by federal law or any airport proprietor from setting more stringent standards.
>
> 5004. Applicability. These regulations establish a mandatory procedure which is applicable to and at all existing and future potential airports in California which are required to operate under a valid permit issued by the department. These regulations are applicable (to the degree not prohibited by federal law) to all operations of aircraft and aircraft engines which produce noise. Only those airports which shall have been determined to have a noise problem (in accordance with Section 5050) will be required to perform noise monitoring.
>
> The regulations established by this subchapter are not intended to set noise levels applicable in litigation arising out of claims for damages occasioned by noise. Nothing herein contained in these regulations shall be construed to prescribe a duty of care

> in favor of, or to create any evidentiary presumption for use by, any person or entity other than the State of California, the counties and airport proprietors in the enforcement of these regulations.[163]

Greenwald considers the preemption question with respect to the California regulatory scheme somewhat more explicitly:

> In extensive opinion briefs, legislative counsel of the State of California (Aircraft Noise Opinion No. 8583-27-69) concluded that airport controls are not preempted by Federal law, nor in conflict with the Commerce Provisions of the Federal Constitution. This position appears to be consistent with the view of FAA as expressed in correspondence (July 23, 1969 from the office of Nathaniel H. Goodrich, FAA General Counsel, to Robert F. Nuttman, Assistant County Counsel of the County of Orange, State of California) which states in part:
>
> "In your meeting with a representative of our Regulations Division, you were furnished a copy of Senate Report No. 1353, on the subject of 'Aircraft Noise Abatement.' This Report accompanied HR 3400 which amended Title VI of the Federal Aviation Act to add a Section 611 authorizing the Administrator to prescribe aircraft noise certification standards and regulations on the control of aircraft noise. As indicated in that Report, Section 611 does not derogate the authority of a state or local public agency to fix the permissible levels of aircraft noise at any airport or airports which it owns. It has this authority as the airport proprietor, however, and not as a legislative body. In other words, the Orange County Board of Supervisors may, under the current state of the law, issue an ordinance fixing aircraft noise levels at the Orange County Airport. It could not so regulate other airports in the County, public or private, which it did not own."
>
> A detailed opinion of the office of the Attorney General of the State of California (No. 216; 2-27-70) by Nicholas C. Yost, Deputy Attorney General, concludes that: (1) The federal government has occupied a portion of but has not preempted the entire field of regulating aircraft-produced community noise; and

> (2) state and local governments may legislate in the field if there is no conflict with federal statutes or regulations.[164]

Obviously the aircraft noise problem differs with the particular locality. The effects vary in terms of noise levels, geographical area, number of residences, hospitals, schools, etc. affected, and with other variables. Necessarily, the regulatory schemes for effective abatement and control will differ depending upon how the aircraft noise problem context is defined with respect to the above variables. The California state-wide scheme may prove effective for regulating the aircraft noise in that state. However, other aircraft noise problem contexts cannot be defined in terms of a single state. The Report on The Noise Around Us notes that a joint response from several states may be in order with respect to certain aircraft noise problem areas but also finds that such interstate compacts or authorities have not come into existence with the exception of New York Port Authority. The authority and operations of this Authority are described in the following terms:

> The Port of New York Authority, a bi-State compact agency of the States of New York and New Jersey, which operates a regional airport system in the New York-New Jersey area (John F. Kennedy International, La Guardia, Newark and Teterboro Airports), has for years imposed noise limitations on aircraft taking off from its airports and monitors the takeoffs to assure compliance. The Authority exercises its right to prescribe noise limits in its capacity as an airport owner-operator and not as an exercise of local governmental police power to regulate in a legislative sense. The Authority does not regulate landings inasmuch as

> approach procedures are executed off the premises in which it has a proprietary interest. Moreover, the Port of New York Authority's noise limitation rules have been stated to be expressly subordinate to the FAA rules, and accordingly, do not conflict with FAA procedures.
>
> It would appear that the passage of the Noise Certification Act (Section 611 of the Federal Aviation Act) will in no way affect the power of the Port Authority to impose noise restrictions on aircraft using its airports. The legislative history of the Act makes it clear that Congress did not intend to preempt the authority of a State or local public agency acting in its capacity as the operator of an airport, to issue regulations denying the use of its airport to aircraft on the basis of noise consideration, so long as such exclusion is non-discriminatory. It does, however, preempt the right of the State and local governments to regulate aircraft noise pursuant to the local police power.[165]

The lack of faith reflected in the foregoing judgments in the legislative-administrative-regulatory structure as a means for effective abatement and control of aircraft and airport noise and the necessity for falling back on the judicial process is not fully supported by past experience with court decisions involving noise abatement.

C. Regulation of Aircraft Noise by Private Actions and Local Ordinances

In reviewing the "first aircraft noise cases" between 1928 and 1946, Lesser states that "An uneven, and in various respects conflicting, body of law emerged from these decisions."[166] Some of these actions were brought on the common law doctrines of trespass and nuisance while others dealt with state legislation, the Air Commerce Act of 1926, and the Civil Aeronautics Act of

1938.[167] The Causby case which held for the plaintiff on the basis of a partial, constitutional taking, discussed in 2.1.2 supra, was decided in 1946.[168]

Lesser asserts that "In 1952 for the first time, local government attempted to play a regulatory role in the field of air traffic control."[169] Cedarhurst, New York, which is near Kennedy International Airport, had enacted an ordinance making it a criminal offense to fly aircraft over the village at altitudes under 1,000 feet. The ordinance declared inter alia that low level flights constitute "a public nuisance, a trespass, and a menace to the inhabitants . . . and to their rights of property."[170] In reciting the court decisions in the second round of this litigation, Lesser states:

> The District Court ruled that the ordinance was unconstitutional and permanently enjoined its enforcement. It held that Congress exercised its commerce clause powers to regulate aircraft flight in enacting the Air Commerce Act of 1926 and the Civil Aeronautics Act of 1938; that these statutes indicate a Congressional purpose to preempt the regulation of such flight in the interest of safety, a valid standard; that the navigable airspace through which Congress has granted a free right of transit includes the space below 1,000 feet necessary for take-offs from and landings at public airports; that the states and their subdivisions are precluded from enacting conflicting laws; and since the ordinance conflicts in many ways with the federal regulatory system, it is invalidated by the Constitution's supremacy clause. In addition, the court, relying on Causby, held that the airspace, apart from the immediate reaches, is part of the public domain.
>
> The Second Circuit affirmed, ruling that the ordinance invaded a field of regulation - air traffic control -

> which Congress had preempted to the complete exclusion of the conflicting legislation by the states and their agencies. Its opinion pointed out that the federal regulatory system of air traffic control "has preempted the field below as well as above 1000 feet from the ground."[171]

A New Jersey suit brought by five municipalities adjoining Newark Airport undertook to achieve essentially the same objective. The complaint alleged a continuing nuisance and trespass and sought an injunction which would in effect have closed down the airport. Plaintiffs wished to enjoin all flights over their properties at altitudes under 1,200 feet. The suit was dismissed,[172] the court being of the opinion that the decree sought would seriously interfere with "existing air traffic regulations and flight patterns - action which the court held to be within the primary jurisdiction of the federal regulatory agencies."[173]

As noted in subsection 2.1.2 supra the second major U.S. Supreme Court case involving the aircraft noise problem was that of Griggs v. Allegheny County decided in 1962.[174] As is subsequently indicated, the Griggs case, while perhaps "rightly decided" in the context in which it arose, has nevertheless, created some difficult and persistent questions concerning the distribution of authority over air operations and the critical problem of where liability should be placed for injury resulting from aircraft noise.

The Causby case did not decide such questions as the liability of participating entities in the context of "a publicly-owned airport where the noise . . . (is) caused not by military aircraft (owned by the government) but by commercial air carriers flying pursuant to flight patterns established by the federal regulatory agencies."[175] The Griggs litigation commenced in 1953. When finally decided by the Pennsylvania Supreme Court it was determined that since Allegheny County neither operated the aircraft nor controlled the flight pattern of the aircraft, the County should bear no liability for the noise damage. The Pennsylvania Court further found that while Griggs could not maintain an action against the airlines on the basis of inverse condemnation (since the airlines had no power of eminent domain), that comparable relief could be granted under Pennsylvania law against the airlines:

> For Griggs to make use of . . . Causby . . . he should look for relief to the owners or operators of the aircraft which have made the complained of flights through the air space above the land.[176]

This holding was contrary to the holding of the Washington Supreme Court of the previous year in Ackerman v. Port of Seattle[177] which said that the airport operator could be liable.

Both the Pennsylvania and Washington Supreme Courts, according to Lesser, agreed that "Takeoff and landing operations were not within the navigable airspace or, in Justice Douglas's language, the public domain."[178] However, this conclusion which supposedly followed from Causby is contrary to the provisions of the Federal Aviation Act of 1958, §101 (24), which states:

> "Navigable airspace" means airspace above the minimum altitudes of flight prescribed by regulations issued under this Act, and shall include airspace needed to insure safety in take-off and landing of aircraft.[179]

The U.S. Supreme Court decided Griggs in 1962, reversing the Pennsylvania Supreme Court's ruling that since the airport operator did not in fact control the planes, it should not be liable for a taking of property.[180] Griggs had brought his action against the Federal government, the commercial airlines using the Greater Pittsburgh Airport, and Allegheny County which was the airport operator. According to Justice Douglas who wrote the opinion, the airlines were not liable:

> The airlines that use the airport are lessees of respondent (the airport operator); and the leases give them, among other things, the right 'to land' and 'take-off.' No flights were in violation of the regulations of C.A.A. . . . .[181]

Justice Douglas found that the airport operator must accept the liability since it was:

> . . . the promoter, owner, and lessor of the airport*** (and) decided, subject to the approval of the C.A.A., where the airport would be built, what runways it would need, their direction and length, and what land and navigation easements would be needed.[182]

He further determined that the Federal government was not liable since it:

> takes nothing; it is the local authority which decides to build an airport vel non. and where it is to be located. We see no difference between its responsibility for the air easements necessary for operation of the airport and its responsibility for the land on which the runways were built.[183]

The opinion notes the redefined concept of "navigable airspace" in the Federal Aviation Act of 1958 but gave it no "operative effect" according to Lesser.[184] Would not a strict application of §101(24) have placed the liability on the Federal government? The dissent (written by Justice Black and concurred in by Justice Frankfurter) stressed that the airport had been designed and built under Federal supervision and with CAA approval and that Congress had adopted a comprehensive plan "regulating in minute detail virtually every aspect of air transit."[185] The dissenters also emphasized that the Federal Aviation Act of 1958 specifically declares that "'airspace needed to insure safety in take-off and landing of aircraft' is 'navigable airspace,'" and concluded:

> (W)here Congress has already declared airspace free to all . . . it need not again be acquired by an airport. . . . Having taken the airspace over Griggs' private property for a public use, it is the United States which owes just compensation.[186]

The Griggs decision provided a marginal type of relief for private landowners, the complainant in Griggs as in Causby being a private landowner. The remedy of inverse condemnation, however, did not prove suitable for coping with the distress suffered by large numbers of people residing in or near or doing business in or near airports. Hence, despite the lack of success in such cases as Cedarhurst, many municipalities undertook to provide protection for the general public through the enactment of local ordinances.

The Town of Hempstead, adjoining Kennedy International Airport, adopted a local ordinance in 1963 which undertook to prohibit the operation of mechanisms and devices including aircraft within the town limits which created noise above specified levels. The effect of the ordinance would have prevented the use of five runways at the airport which were aligned in the direction of the town. A suit to enjoin enforcement of the ordinance was successful.[187] The Federal District Court stated that "the Ordinance does not forbid noise except by forbidding flights and it is, therefore, the legal equivalent of the invalid Cedarhurst Ordinance."[188] Lesser sums up the situation as follows:

> The district court invalidated the ordinance on the grounds that it (a) unconstitutionally burdened interstate commerce, (b) invaded an area preempted by federal legislation, and (c) conflicted with valid applicable federal regulations. The Second Circuit avoided reaching the first two grounds but held that the third ground "is an ample basis for affirmance." 398 F2d 369, 372. Both courts noted that the litigation did not involve possible questions of landowner rights to compensation for overflights that might amount to "taking."[189]

Among other attempts by local governments to establish some degree of regulatory authority over aircraft noise was that of the City of Audubon Park, Kentucky, which enacted an ordinance prohibiting flights over the city at altitudes under 750 feet. In this case, American Airlines et al. v. City of Audubon Park,[190] the court held the ordinance invalid in that the aircraft could not comply both with the ordinance and FAA regulations and for reason that it imposed an unreasonable burden on interstate commerce. This case was previously discussed in Subsection 2.3.1. Two other recent cases involving the imposition of nighttime curfews on jet aircraft operations have produced opposite results. In Stagg v. Municipal Court of Santa Monica,[191] an ordinance prohibited jet take-offs between 11:00 P.M. and 7:00 A.M. at the municipal airport which was not used by commercial airlines, the court finding authority in both the police power and in the proprietary authority over the use of the airport.[192] But in Lockheed Air Terminal v. City of Burbank,[193] a similar ordinance of the City of Burbank made applicable to a privately owned air terminal (but used by scheduled air carriers also) was held invalid.

The Lockheed opinion is of considerable interest for several reasons. The fact situation would seem to be far more representative of the aircraft noise regulatory context than the Stagg case. The action was for declaratory relief and injunction whereby the plaintiffs sought to invalidate the Burbank Ordinance which prohibited the take-off by jet aircraft from the air terminal between the hours of 11:00 P.M. and 7:00 A.M. the next day.

The FAA filed an Amicus Curiae brief in support of the position of the plaintiffs. The opinion goes into an extensive discussion of the multiplicity of ways in which the CAB and the FAA regulate the activities and operations of the scheduled interstate carriers that use the Hollywood-Burbank Air Terminal (HBA) and the activities and operations of the airport. The pervasive control exercised by the FAA over air traffic is emphasized with the concluding finding that:

> In the interest of alleviating noise disturbances to the residents of communities adjoining airports located in metropolitan areas, the Administrator of the FAA has established regulations that (1) require turbine powered fixed wing aircraft, approaching for landing, to maintain within the airport traffic area an altitude of at least 1,500 feet above the surface of the airport "until further descent is required for a safe landing," (2) require such aircraft, when taking off, to climb to 1,500 feet as rapidly as practicable (FAR 91.87 (d), (f)).[194]

The Defendant City of Burbank maintained that the Ordinance was "in reality a 'land use' regulation and that Lockheed, as the owner and proprietor of HBA has the authority to place valid limitations on take-offs of jet aircraft during the curfew and that the City can, in turn, control Lockheed with respect to its land use."[195] The "preemption" question was treated in some detail by the court which noted that the Defendant relied upon Huron Portland Cement Co. (discussed in 2.3.1 supra) for its regulatory authority. But the court applied the principles of the Huron case as well as Napier v. Atlantic Coast Line Railroad

Co.[196] and Rice v. Santa Fe Elevator Corp.[197] to the "often . . . perplexing question" in deciding that:

> From the broad scope of Federal statutes and regulations governing and controlling the use of air space and of air traffic, it would appear that Congress intended to centralize full and dominant control of the navigable airspace in the Federal Government so as to provide for its safe and most efficient use.[198]

Further the court cited Senate Report No. 1353[199] in support of its judgment:

> H.R. 3400 would merely expand the Federal Government's role in a field already preempted. It would not change this preemption. State and local governments will remain unable to use their police powers to control aircraft noise by regulating the flight of aircraft.[200]

The testimony of the Director of the Aviation Development Council at La Guardia airport was quoted with approval:

> The approach to the solution of problems in air transportation at the local level just does not work. It has to be done on a national basis because it is a national operation.[201]

The court also discussed separately and at some length the issue of whether the subject Ordinance was a "Violation of the Commerce Clause," and concluded:

> The noise problem created by jet aircraft is well known and it appears to the Court that a curfew Ordinance, if valid, would promptly be adopted by virtually all cities surrounding airports. Considered singly, such an Ordinance might not impose an unlawful interference with interstate commerce in all cases. However, considered on a national level, the Ordinance could not stand.[202]

It was also observed that:

> (I)t should be concluded that air commerce, by reason of its speed and volume, requires a single authority in control if it is to be conducted at maximum safety and efficient use of the navigable airspace.
>
> The evidence discloses that air traffic is unique and should be controlled on the national level.[203]

A somewhat different situation arose in the case of Township of Hanover v. The Town of Morristown.[204] The Plaintiffs (four municipalities, several townships, and certain individuals) sought to enjoin the Town of Morristown from enlarging its airport because of the anticipated increased noise from an expanded airport operation. The action was based on a theory of nuisance although it was also asserted that the proposed improvements to the airport would violate a Hanover zoning ordinance and that such encroachment would represent "a total aggrandizement of the territory of the Township of Hanover."[205] The defendant maintained that the proposed runway extension reflected "natural growth" and if the operation were a nuisance, it was a "legally authorized nuisance."[206] The Superior Court of New Jersey (Chancery Division) reviewed the Huron case rationale and observed that if local ordinances designed to maintain community tranquility and property interests do not conflict with Federal Air Traffic Rules designed to promote safety, then the local prescription should be upheld. But it added:

> If the ability or the cost of compliance with a court decree is so very substantial in comparison with the local interest in reducing the noise interference that

> the regulation might be held to impose an unreasonable burden on interstate commerce, the state action must fail.[207]

It is to be noted that this court of equity jurisdiction recognized the various competing considerations involved and undertook to fashion a decree which would best accommodate the competing interests. The court futher recognized the provisional character sometimes required of such decrees, saying: "Substantial justice can often be accomplished by the granting of conditional, experimental or substitutional relief or any equitable combination thereof."[208] Hence, the court undertook to accommodate the "adversarial positions." Various alternative means of abatement were explored[209] which would also be consistent with the social purposes served by the airport operations. In some respects this judicial approach has a similar quality to the new California Aircraft Noise Code in that it provided for a flexible response by the airport operator.

> If, for the purposes of this case, the Airport is considered to be an offending party, it should be allowed to experiment with such measures as will produce the overall desired result.[210]

It is clear from the opinion that the court was convinced that the Airport and the private corporate aircraft using the facilities (no scheduled airlines were involved) had ignored the complaints and the legitimate interests of the nearby residents.[211] As part of the decree, it was provided that "jet aircraft will be prohibited from take-off or landing except during specified hours, unless an emergency exists."[212] The court also observed in the opinion that "private compensatory damage suits do not accomplish the end objective of noise suppression."[213]

Clearly the invocation of ordinances or other local actions are on uneasy ground both with respect to preemption by Federal legislation and with respect to their being an unreasonable burden on interstate commerce. Hence, local governments in their capacity as proprietors of municipal airports have turned to means of abatement other than legal-regulatory measures. Lesser explains that:

> Wherever possible, runways have been constructed in directions away from residential areas and have been lengthened solely to achieve noise abatement. Moreover, together with other segments of the aviation industry, airport operators have worked towards the adoption of preferential runway systems designed to concentrate approaching and departing traffic in areas which will cause the least disturbance to neighboring communities. Each of these measures has helped but airport officials believe that no further significant noise reduction can be accomplished by these measures.[214]

This discussion of the problem of aircraft noise abatement and control leaves a number of highly significant questions unanswered. These questions pertain to the legal remedies, the measure of damages for a noise nuisance or for a "taking," distribution of authority, locus of liability, zoning and curfew ordinances, and alternative means available other than legal-regulatory for substantial alleviation of jet aircraft noise. Lesser discusses some of the "questions left unanswered by Griggs." The first has to do with lateral noise intrusion from aircraft flights, i.e., whether recovery can be had by landowners adjacent to the overflight tract. He notes that the Federal courts as in the Batten[215] case have denied relief whereas three State courts have held that lateral flights can constitute constitutional takings citing the case of Aaron v. City of Los Angeles[216] in addition to the Martin and Thornbury cases previously discussed in Subdivision 2.1.2 supra. A second question goes to the burden of proof required to justify a compensable taking. This involves the test of the measure of damages required by different courts. A New York Court has said that the "better rule of damages is that if a claimant can demonstrate that the value of his property is substantially diminished . . . he will have met his burden of proof regarding the cause of action for an unconstitutional taking."[217] The Washington Court in Martin v. Port of Seattle said that the amount of damages was measured by "the diminishment of the value" of the land "as reflected by the decrease in the amount he (the property owner) can receive in a sale to a willing buyer."[218] The time that an action accrues and the damages are to be measured poses an additional question.[219]

There have been several cases in both the Federal and State courts in which property owners have recovered under inverse condemnation claims. The extent to which this represents an appreciable control over the abatement of aircraft noise is, of course, uncertain.[220] In addition to cases previously noted it is of significance that 539 of 1,500 landowner plaintiffs recovered total damages in the amount of $750,000 from the Los Angeles International Airport in an inverse condemnation suit.[221] The court said that the cause of action accrued at the time "the annoyance factor of jet noise has become stabilized and has reached the point of causing the market value of the landowner's real property to be substantially reduced."[222] The damages were measured by the "difference between the property's value immediately before and immediately after the appropriation."[223] In the Aaron case "The damages represent the extent to which the market value of the respective properties was reduced because of aircraft flights for specified prior years."[224] In summing up the various decisions discussed, Lesser concludes:

> The indisputable fact that emerges from this review of post-Griggs decisions is that regardless of the result reached, whether individual property owners have won or lost their particular suits, whether they have collected substantial damages, or nominal damages or no damages, the noise of jet aircraft continues to afflict them. And with the ever-increasing amount of jet traffic the number of persons afflicted continues to grow. Viewed realistically, the legal problems presented by aircraft noise pale into insignificance compared with the political,

sociological, economic and human problems raised. The question therefore naturally arises as to what steps the government can take - whether at the federal, state or local level - to protect airport neighbors from aircraft noise.[225]

D. Implications of the Griggs Doctrine: Federal State, Local and Private

Before reviewing alternative modes of aircraft noise abatement, it is perhaps advisable to inquire into some of the broader policy implications of the Griggs case since issues of paramount importance flow from that decision. Not only did that case assist in advancing inverse condemnation as a mode of noise abatement, it also established the airport operator as the locus of liability. The potential reach of this liability is suggested by Aaron v. City of Los Angeles. Local governments have been essentially unable to solve the aircraft noise problem through the adoption of ordinances for reason of Federal preemption or for reason of placing an undue burden on interstate commerce. The same considerations apply to the states since both State and local jurisdictions must rely upon the police power as authority for such enactments. The Federal government, being absolved of liability under the Griggs doctrine, did not feel pressed to undertake drastic abatement programs. Federal officials could calmly maintain that "under the Federal Aviation Act of 1958 the only power to regulate this phase of aviation related to aircraft safety and not noise alleviation."[226] Some commentators assert that the Griggs decision left the "financial burdent of aircraft noise on the segment of the aviation community that could do least about it." It seems evident that "Litigation of the Causby and Griggs variety is no solution to the aircraft noise problem.[227]

However, the Federal government which, along with the airlines, was relieved of liability for aircraft noise in Griggs, had recognized the existence of the impending dimensions of the noise problem from a relatively early date as previously noted. A helpful summary of the efforts of the Federal government and the private sector with respect to noise reduction research and development was appended in the Hearing Proceedings of the Aviation Subcommittee of the Committee on Commerce, U.S. Senate, on S707 and H.R. 3400 leading up to the enactment of §611 in 1968.[228] The following paragraphs provide some commentary with illustrative quotes from this Summary.

Congressional Hearings in 1962 "confirmed a 1960 House Committee recommendation that 'noise criteria be mandatory requirements in drafting specifications for future...aircraft,'"[229] since the lack of "maximum noise" criteria established by the Federal government had been a "deterrent to manufacturers to achieve greater noise suppression."[230] There had been no doubt of the awareness of the aircraft engine manufacturers of the noise problem, but competitive considerations precluded the allocation of substantial research to noise abatement, the objective being to "build engines and aircraft (with) maximum performance characteristics without regard to noise."[231]

In the 1962 hearings, industry spokesman were extremely pessimistic that a great deal could be done to alleviate aircraft noise, though some difference of opinion was expressed on this point.[232] Government officials had noted as early as 1960 that whatever the prospects for noise abatement, no appreciable effort could be expected in the absence of formal noise limitation requirements.[233] There was no incentive for a particular developer to adhere to given standards if he was not sure his competitor was being held to the same standards. With the introduction of the Boeing 727 it was established, according to the Summary, that, "there is no technical problem in developing larger aircraft with greater power without increasing noise."[234] By 1964 Pratt & Whitney was conducting a "great deal of noise abatement research."[235] Subcommittee II on Technology to the White House Office of Science and Technology "Program Evaluation and Development Committee" reported in 1967 that a "15 to 20 PNdB engine/nacelle noise reduction goal is considered to be within the present state of the art and additional R&D should start from here."[236] Further, "On September 27, 1967, the Federal Aviation Administration, Office of Noise Abatement, issued an Aircraft Noise Certification Alternatives paper proposing aircraft noise reduction goals for certification of aircraft and procedures for measuring aircraft noise for certification purposes."[237] In testimony before the House Committee on Science and Astronautics on February 28, 1968, Dr. Donald F. Hornig, Director, Office of

Science and Technology, stated:

> (T)he most important directions for our work in (aircraft) noise alleviation must be through reducing noise at the source--i.e., through modifying the acoustical properties of currently available engines, through developing equipment enabling less noisy aircraft operating procedures near airports, and through providing, and as rapidly as possible, basically quieter jet engines.[238]

The Summary further states that FAA, NASA, and primary airframe and engine manufacturers "are in agreement that, through the use of today's currently available technology, we can effectively reduce jet aircraft noise on take-off and landing by one-half."[239] The Summary also stated that the "U.S. SST design competition demonstrates the extent to which reduced noise annoyance can be 'built into' aircraft design when manufacturers are given sufficient incentive."[240]

The Summary provided numerous examples of Government-sponsored noise abatement research both by NASA and by contract to private entities such as Boeing, Douglas, and General Electric. It is asserted that "Earlier Government-sponsored research into lowering noise annoyance at the source has been augmented as the result of the President's Inter-Agency Aircraft Noise Abatement Program."[241] Several optimistic references are made to the NASA "Quiet Engine" project and to other efforts to reduce noise through nacelle modification.[242] However, as pointedly noted by the Jet Aircraft Noise Panel of OST in its 1966 Report, the coordinated effort required among all participants in the aircraft noise context was definitely lacking.[243]

The airlines have enjoyed the legal shield of the Griggs decision and had no statutory requirement to contribute a positive input to aircraft noise abatement until the enactment of §611 in 1968. Likewise, the Federal government has shown no disposition to accept liability for noise damage - even of Federally-certified commercial aircraft as the dissenting Justices urged in Griggs.

Understandably, the questions of the distribution of authority or responsibility for aircraft noise abatement and of the allocation of the burden (legal liability) for aircraft noise damage has been a matter of serious controversy for many years. One commentator observed as of 1964 that:

> The potential liability for "takings" caused by jet noise presents a serious problem to municipalities and other public airport owners. Although they have not acquiesced in the philosophy of the Griggs decision, and continue to urge that the federal government assume the burden, such a result appears unlikely. The Federal Airport Act authorizes the Federal Aviation Agency to make matching grants to airport operators for "airport development," which is defined to include the cost of acquisition of "any easement through or any interest in airspace, which is necessary to permit any such work or to remove or mitigate or limit the establishment of, airport hazards...." But this legislation was enacted in 1946, when the problem of jet noise was unforeseen, and before the decisions in either Causby or Griggs. Thus, considerable doubt exists whether grants for the acquisition of avigation easements would be within the congressional intent.[244]

Further, the prospects for Congressional approval of Federal assumption of liability for aircraft noise damage seemed unlikely to the author who quoted the following passage from H.R. Report, No. 36, 88th Cong., 1st Sess. 24 (1963):

> Any enactment by the U.S. Congress to indemnify each and every airport operator throughout the United States of America against judgments which might be obtained or for moneys paid over to claimants in the settlement of claims alleged under the doctrine of the Griggs case would be impractical.[245]

In Senate Report No. 1353, relating to the §611 legislation of 1968, a question arose as to the extent of Federal involvement in the total aircraft noise abatement process, the Report noting that: "It is not the intent of the committee in recommending this legislation to effect any change in the existing apportionment of powers between the Federal and State and local governments."[246] Illustrative quotes from a letter of the Secretary of DOT to the Committee state:

> Just as an airport owner is responsible for deciding how long the runways will be, so is the owner responsible for obtaining noise easements necessary to permit the landing and takeoff of the aircraft....[247]
>
> Likewise, the Federal Government is in no position to require an airport to accept service by noisier aircraft, and for that purpose to obtain additional noise easements.[248]

Nevertheless, it is of interest that the author, after commenting favorably on the cases of Thornburg v. Port of Portland and Martin v. Port of Seattle which held contrary to Batten by finding that noise intrusions suffered by subjacent landowners was compensable, comes to the concluding observation that "the airport operator (has) substantial defenses to his potential liability."[249] Despite the relatively few cases in which airport operators have been held liable for noise damages or subject to injunctions since 1964, the concern of airport operators over their potential liability appears to be on the increase.[250]

It was not until the 1968 enactment of §611 (as an amendment to the Federal Aviation Act of 1958) relating to the Control of Aircraft Noise and Sonic Boom that the Federal government was directly thrust into an active program of aircraft noise abatement. This legislation provided the aircraft engine manufacturers and airlines a compelling incentive for the first time to introduce noise criteria into their planning and operations. Senate Report No. 1353 accompanying H.R. 3400 which became Public Law 90-411[251] made clear that the FAA had authority "to require retrofitting of aircraft already certified"[252] as well as to set noise standards for new aircraft. The regulations established pursuant to Public Law 90-411 took effect on December 1, 1969, and were made applicable to new subsonic aircraft.[253] Some commentators have criticized the noise standards set - in that under certain conditions noise levels as high as 110 EPNdB would be permissible as a consequence of the "trade-off" provision, and note that an increase in noise level from 106 to 110 EPNdB reflects close to a 50% increase in annoyance.[254] The regulations are also limited in that they do not apply to the first group of Boeing 747's. The first new aircraft to which they unqualifiedly apply are the McDonnell Douglass DC 10 and the

Lockheed L 1011. However, it is stated in the FAA regulations that "No determination is made...that these noise levels are or should be acceptable or unacceptable for operation at, into, or out of, any airport."[255]

E. The Proprietorship Doctrine of Control

The previous discussion has described the role of major participants in the aircraft noise context and the legal obligations, or lack thereof, with respect to such participants. The airlines are subject only to the noise level requirements of the FAA upon certification of new aircraft. The Federal government was effectively relieved of aircraft noise liability by the Griggs decision as were the airlines. The states and municipalities have had little success in controlling aircraft noise through invocation of the police power. The airport operators are the loci of liability and, hence, the targets of private actions to enjoin certain types of operations or for damages on the theory of nuisance or of a compensable taking. One further control alternative has emerged as a recurrent theme throughout this discussion, namely, the control which may be initiated by the airport owner or operator in his private, proprietorship capacity. This concept needs further exploration.

The "proprietorship" doctrine not only provides a useful means of examining the liability question but also forces attention to alternative means of aircraft noise abatement. If the airport operator is to be held liable for aircraft noise, then it seems quite reasonable that he would insist upon the maximum degree of control over aircraft operations. The concept of control here considered is that of an owner or operator - not that of a state or a municipality pursuant to the police power even though most major airports are owned by a state or municipality. But the question arises as to just what aspects of air transport operations might be subject to control by the airport operator. The Federal Aviation Act of 1958 provides that:

> "Navigable airspace" means airspace above the minimum altitudes of flight prescribed by regulations issued under this Act, and shall include airspace needed to insure safety in take-off and landing of aircraft.[256]

It would seem, therefore, that control over take-offs and landings with respect to safety is clearly the province of the FAA. And the FAA now certifies new aircraft with respect to noise levels. So what remains in the control zone of the airport operator? Actually a number of important operations remain with the airport operator as shown in statements of Congressional committees, the Secretary of Transportation, and officials of the FAA. With respect to aircraft noise, the relevant documents from official sources make it abundantly clear that the 1968 legislation on Control and Abatement of Aircraft Noise and Sonic Boom was directed solely to "abatement at the source" and that various public and private sector entities would necessarily be involved in other types of abatement programs.

The Port of New York Authority, pursuant to its status as proprietor of four metropolitan airports, has adopted noise regulations, setting the noise limit on take-off at 112 PNdB.[257] The right of the Port Authority to ban the use by jet aircraft of a recently completed runway at La Guardia pending completion of construction of a second runway, for purposes of avoiding intense jet noise which would have resulted from the use of one runway only, has been upheld.[258]

> The airline argued,..., that the Authority's restriction invaded a field preempted by Congress to the total exclusion of local government action. Although the Authority conceded that Congress had preempted, to a great extent, the field of air traffic regulation, it argued that Congress had not ousted an airport operator of jurisdiction to control the use of its facilities. The Authority contended that an inevitable corollary to the Griggs holding must be that airport operators possess the right to protect themselves from possible liability by limiting or otherwise conditioning the use aircraft can make of their runways.[259]

Even if the "proprietorship" concept continues to be accorded respectable legal status, it nevertheless seems a somewhat simplistic and undiscriminating control rationale to apply to the complex of functions, operations, and public/private relationships associated with a large metropolitan or regional airport. Continued recognition of the proprietorship status of the airport operator would seem to depend largely upon a mutual accord between the operator and the FAA as to the division of authority and obligations with respect to various functions such as aircraft noise abatement. It does not seem plausible that an airport operator could impose noise standards which were substantially more stringent than those approved or condoned by the FAA as the general norm. In any event, the noise abatement alternatives available to the airport operator are severely limited. He has essentially no control over abating aircraft noise at the source. He can impose some control through the use of runways, by engine warm-up locational procedures, and, perhaps, by the imposition of limited curfew regulations. But the airport operator, as proprietor, cannot rezone, or compel mass movements of people and associated public service activities. He may not be financially capable of purchasing avigational easements or of bearing the expense of extensive buffering. Yet, he is liable for aircraft noise damage.

The airport operator finds himself in a bind. While his capability to abate aircraft noise is severely limited, his potential liability is substantial.[260] To escape this liability he is interested either in removing the cause or in shifting the liability.[261] The position of the Port of New York Authority offers some insights into the "thinking" of the airport operator about this situation. In a recent statement before the Senate Commerce Committee, Subcommittee on Aviation, John R. Wiley, Director of Aviation, Port of New York Authority, reviewed the options for abating aircraft noise. With reference to "moving noise away from the people," he stated:

> (E)stablishment of approach and departure paths to minimize flight over residential areas, use of preferential runways to make maximum use of open or uncongested areas, and steeper climb and descent paths consistent with safety and existing technology...does not offer adequate relief.[262]

Mr. Wiley found the second method of "moving the people away from the noise" also to be unacceptable, even if economically feasible, saying: "The relocation of hundreds of thousands of people, the disruption of their lives, and the destruction of entire communities is no solution."[263] He strongly supported the third method, namely, reducing the noise at the source, maintaining that:

> In contrast to the billions of dollars that would be required by a land-use program, approximately the same goal can be achieved through retrofit at a cost of perhaps $600 million.[264]

This position, relative to the feasibility and cost of retrofitting, was strongly supported by some witnesses but vigorously disputed by others in the same hearing.[265]

Of particular relevance to the present discussion was the rejection by Mr. Wiley of the recommendation attributed to the Air Transport Association which, as Mr. Wiley put it, would "provide, in effect, for complete Federal government preemption of the entire field of aircraft noise, even to the point of nullifying the historical right of local airport operators to provide noise limitations on the aircraft which use their facilities."[266] He indicates that this is directly contrary to "Congress's intent in adopting the Noise Certification Act of 1968 (Public Law 90-411, 49 U.S.C. § 1431)," and concludes:

> It is inconceivable to me that Congress can adopt the ATA recommendation without at the same time placing upon the Federal Government monetary liability for the acquistion of whatever air easements

> are constitutionally required to accommodate aircraft in the course of their landing and take-off maneuvers. To do so would create an impossible situation for airport operators, since in many instances, only by restricting the use of jet aircraft at their airports can such operators avoid monetary liability to property owners aggrieved by aircraft noise. Unless the Congress is willing to go the full way of assuming complete Federal monetary liability and thus reverse the Supreme Court decision in the Griggs litigation by legislative means, the Congress should not, and most probably cannot, take away the historical right of an airport proprietor to control the noise characteristics of the jet aircraft which use their facilities.[267]

A recent opinion (advisory) of the Supreme Judicial Court of Massachusetts provides a further analysis of distribution of authority for control of aircraft noise and sonic boom and raises additional questions concerning the "police power" versus the "proprietorship" concept of control.

The Massachusetts Court undertook to examine a bill of the State House of Representatives entitled "An Act Prohibiting Supersonic Transport (SST) Planes from Landing or Taking Off in the Commonwealth."[268] The bill recited:

> Notwithstanding the provision of any law, unless there is an emergency, no commercial super sonic transport plane which is not capable of limiting its noise level to one hundred and eight decibels or less while landing, on the ground, or taking off will be permitted to land or to take off in the commonwealth.[269]

Since "grave doubt" existed as to the constitutionality of the bill if enacted into law, the question addressed was:

> Is it constitutionally competent for the General Court to enact said Senate Bill No. 1161, amended,

> which in effect prohibits the landing of any commercial super sonic transport aircraft at any airport within the commonwealth notwithstanding that the operation of such aircraft in interstate and international commerce is regulated by the Congress?[270]

In a decision dated June 25, 1971, the question was answered "no."

In arriving at its answer the Massachusetts Court considered various legal doctrines of significance to the regulation of environmental noise and particularly to aircraft noise. After reviewing alternative ways in which Federal preemption of State action may be indicated and after asserting that "The intention of Congress to exclude states from exerting their police power must be clearly manifested,"[271] the Court went on to examine Federal legislation in the air traffic control area. It found that the "Federal government has asserted a broad authority to control and regulate the use of navigable airspace and aircraft operations"[272] and discusses the "comprehensive scheme"[273] of Federal control as reflected in the Federal Aviation Act of 1958. The Court noted that under this Act, the United States is declared "to possess and exercise complete and exclusive national sovereignty in the airspace of the United States,"[274] and that:

> This act confers upon the administrator (of FAA) vast powers over all aspects of aircraft navigation. These powers include, among other things, authority for the development of plans and policy with respect to the use of navigable airspace and allotment of the use of such airspace.[275]

Moving to the precise question posed, the Massachusetts Court asserted that:

> Federal legislative action has been taken directly in the field which Senate Bill No. 1161, amended, purports to regulate. This was done by the 1968 amendment to the Federal Aviation Act of 1958. See 49 U.S.C. §1431 (Supp. V, 1965-1969). The amendment directs the FAA Administrator to prescribe standards for the measurement of aircraft noise and sonic boom and rules and regulations for the control and abatement of aircraft noise and sonic boom.[276]

But again, the Court finds that the legislative history of the 1968 amendment "contains,...some indication that Congress did not intend completely to exclude all State action in the field of aircraft noise control,"[277] citing Senate Report No. 1353, and quoting from the Report:

> (T)he proposed legislation will not affect the rights of a State or local public agency, as the proprietor of an airport, from issuing regulations or establishing requirements as to the permissible level of noise which can be created by aircraft using the airport. Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory.[278]

The Court further found that subsequent FAA action has been consistent with this division of powers, stating:

> The amendment to the regulations is prefaced by the following statement: "Relation to responsibility of airport proprietors: Compliance with Part 36 is not to be construed as a Federal determination that the aircraft is 'acceptable' from a noise standpoint, in particular airport environments. Responsibility for determining the permissible noise levels for aircraft using an airport remains with the proprietor of that airport. The noise limits specified in Part 36 are

> the technologically practicable and economically reasonable limits of aircraft noise reduction technology at the time of type certification and are not intended to substitute federally determined noise levels for those more restrictive limits determined to be necessary by individual airport proprietors in response to the locally determined desire for quiet and the locally determined need for the benefits of air commerce. This limitation on the scope of Part 36 is required for consistency with the responsibilities placed upon the airport proprietor by the U.S. Supreme Court in Griggs v. Allegheny County, 369 U.S. 84...Consistent with this limited scope, this amendment specified that the Federal Aviation Administration makes no determination, under Part 36, on the acceptability of the prescribed noise levels in any specific airport environment (see §§36.5 and 36.1581 (a)." See 34 Fed. Reg. 18355.[279]

The Court then reviewed the more familiar cases involving local ordinances which have been found to conflict with FAA regulations and therefore to be unconstitutional. The findings of the Court are summed up as follows:

> The Hempstead case, of course, was decided prior to the 1968 amendment to the Federal Aviation Act and did not involve an airport proprietor. Nevertheless, the principles expressed in that case and the comprehensive character of Federal air statutes and regulations, existing even prior to 1968, lead us to conclude that the proposed Massachusetts legislation would intrude upon an area preempted by the Congress. Assuming without deciding that there has not been complete Federal preemption of the field of noise control (at least with respect to action by a State or local public agency, as proprietor of an airport wholly owned and operated by the State or its agency) we conclude that Senate Bill No. 1161, as amended, is so broad as to exceed any permissible State action. (Citing Hempstead, Audobon Park and Rosenhan cases). The bill is not framed in terms of a State or local public agency acting as an airport proprietor and operator. Instead it purports to prevent nonconforming aircraft from landing or taking off anywhere in

> the Commonwealth. This exceeds any area which may still be left subject to State regulation. The legislative history of the 1968 amendment recognizes the breadth of the preexisting Federal preemption for it states that the amendment "would merely expand the Federal Government's role in a field already preempted...State and local governments will remain unable to use their police powers to control aircraft noise by regulating the flight of aircraft." (Emphasis supplied.)[280]

Having determined that State action pursuant to the police power as expressed in the proposed bill was precluded by virtue of Federal preemption, the Court then undertook to examine the situation from the standpoint of control in terms of proprietorship. It reasoned:

> Even if the bill were framed in terms of "airport proprietors," there would still be serious doubt about its constitutional validity. Recently, the FAA issued notice of proposed noise control with respect to supersonic aircraft. See 35 Fed. Reg. 6189, 16980, 12555. Federal action in this field may well invalidate any State action in the area. Also, although the Justices have insufficient evidence to advise on this point, the extremely complex procedures established by the FAA for evaluating noise (14 D.F.R. §36.1581) may conflict with the simple and possibly imprecise "108 decibels" standard prescribed by the proposed legislation. Furthermore, if State regulation of noise in fact does not have any effect on the operation of aircraft in the Commonwealth, there would remain the question whether the bill imposes an unreasonable or discriminatory burden on interstate commerce or conflicts with any treaty obligation of the United States Government. We need not, however, reach these difficult issues.[281]

In a footnote the Court observed that "even if the bill would place a burden on interstate aircraft commerce, there would remain the question of whether any State interest justified such a burden,"[282] citing the Huron Portland Cement Co. v. Detroit case, 362 U.S. 440 (discussed in 2.3.1 *supra*).

Whatever the precedent value of this particular decision, the Court did delineate some of the critical questions concerning State police power control and proprietorship control of aircraft noise and sonic boom. However, it falls far short of being a definitive resolution of the legal-constitutional issues. It does seem clear that the State's authority to regulate aircraft commerce pursuant to its police power is severely circumscribed if not completely precluded. Further, it would appear that if the "comprehensive (Federal) scheme" has in fact preempted the field, then it would make no difference whether the proposed bill applied to all aircraft operations within the State or to one or more particular airports operated by the State. Assuming some scope of aircraft noise regulation remains with the States, however, the extent of the air commerce operations proposed to be regulated by the State might have a bearing upon the determination of whether such regulation imposed an undue burden on interstate commerce. A question still remains with respect to control through proprietorship status. What if the Massachusetts Port Authority in its proprietorship capacity should issue a regulation for control of aircraft operations at Logan Airport for noise abatement purposes similar to the provisions of Senate Bill 1161? If the effect of such a regulation would be to seriously hamper interstate and foreign air commerce, would a court in a suit to enjoin the enforcement of such regulation likely reject the proprietorship concept and construe such regulation as an invalid exercise of State police power? Or might the court find that all aspects of aircraft operations have been preempted by the Federal government and that all airports must conduct their operations consistent with this condition? Or would new Federal legislation be required to subject all airports handling interstate and foreign commerce to common rules of take-off, landing, and in-flight operations?

One point is clear. As long as aircraft noise continues to be a serious social problem (noise not being sufficiently reduced at the source) and the full burden of the liability for aircraft noise damages rests with airport operators, the proprietorship concept will be tenaciously asserted - with good reason. Yet, it is obvious that the noise abatement measures available to the airport operators even under authority of this doctrine are severely limited. Over the longer period only noise abatement at the source, through new aircraft type certification and possibly retrofit, is likely to provide a satisfactory solution.

This provisional judgment, however, needs further elaboration in terms of the magnitude of the aircraft noise problem and the alternative abatement measures available.

F. Scope of Aircraft Noise Problem and Alternative Abatement Techniques

The aircraft noise problem has reached serious proportions. The recent Joint DOT-NASA Civil Aviation Research and Development Policy Study Report states:

> The impact of civil aviation on the environment is evident in the public concern regarding noise, air pollution, water pollution, esthetics, ecological disturbances, and meteorological changes. Of these effects, noise is judged to be the most important and presently a critical constraint to the future growth of civil aviation. This constraint is already manifested in the inability to site and construct new airports in locations required to meet demand and in the reduction of existing airport capacity by noise restrictions and operational limitations.[283]

With respect to the magnitude of the problem this Report states that *inter alia*:

> The high-noise area around the J. F. Kennedy Airport in New York includes 35,000 dwellings, 22 public schools, and several dozen churches and clubs. This area, plus that surrounding the Los Angeles and Chicago airports, estimated at 42,000 acres, is three times greater than all the land redeveloped during the 16 years of urban renewal at a cost of $5 billion dollars.[284]

It is further noted that while the potential cost of damages from law suits cannot be reliably evaluated, that presently (March 1971) "in Los Angeles there are 34 law suits against the airport, and the Los Angeles Unified School District alone is seeking $95 million in damages."[285]

A recent news story documents the fact that there is increasing public opposition to the expansion of existing airports and to the construction of new airports, perhaps primarily for reason of noise intrusion.[286] Among cities resisting airport expansion or new construction are Atlanta, Boston, Los Angeles, Minneapolis-St. Paul, New York, San Jose, St. Louis and Portland, Oregon. New airport projects are also being opposed in Tokyo, Zurich, and Dusseldorf. With respect to the delay caused by such opposition, "attorneys for the Port of Portland estimate that it takes a minimum of five years to carry a case through the Circuit Court of Appeals."[287] Cleveland is seriously considering the establishment of a new international jetport on a diked island five to eight miles offshore in Lake Erie.[288] There seems little question but that prospective noise and sonic boom effects provided critical arguments in opposition to the American version of the SST.[289] Official action had been taken prior to the Congressional defeat of the SST to reduce the threat of the sonic boom and, ostensibly, to soften the public resistance to the SST program. The DOT-NASA CARD Study Report states:

> A Department of Transportation notice of proposed rulemaking to ban civil supersonic flight over land was filed on April 10, 1970, and was published in the Federal Register on April 16, 1970 (ref. 4). In addition to filing this proposed amendment to the Federal Aviation Regulations, the President of the United States, The Secretary of Transportation, and other representatives of the Executive Branch have said that commercial supersonic flight over land will not be permitted. Despite these assurances, some critics contend that the regulation might be changed or revoked when commercial supersonic flight becomes a reality.[290]

The full social costs of aircraft noise have been described in terms of 1) Human cost; 2) Cost of land acquisition; 3) Cost of noise abatement operating procedures; 4) Cost of limitations on operations; 5) Cost of litigation; 6) Cost of ground transportation; and 7) Cost of aircraft operating delays.[291] The DOT-NASA CARD Study Report indicates that with supporting research, the current jet fleet might be modified by retrofitting techniques to cut approach noise by 10 decibels within 10 years.[292] It is further suggested that if noise is not substantially reduced, land acquisition to avoid excessive noise may reach many billions of dollars.[293] One measure is provided by the British experience with the location of a new airport to serve the London Metropolitan area. A recent report states that:

> Today one thing is clear, both public and Government are increasingly concerned with the (environmental pollution) problem. A striking example of public concern and Government's reaction to it was the choice of the site for London's third airport. Foulness, an island site situated on the east coast fifty miles from London, was chosen on environmental grounds in spite of the fact that it will cost at present estimates $360 million more to develop than other possible sites. However, the alternatives would have caused irreparable damage to large tracts of the countryside and severe distress to the inhabitants.[294]

In a recent editorial the New York Times stated:

> The city of Los Angeles is committing itself to pay $200 million, including interest charges, to buy up some 2,000 houses whose inhabitants have been driven desperate by jet planes using the nearby municipal airport. The victims are

> to be congratulated on their release from a tortured existence, but what is to be said for the reasoning processes of a society that can waste money at that rate which might more readily have been used to soften the noise of jet planes to the point of making them endurable?[295]

Numerous studies over the past several years have undertaken to evaluate the alternative means of aircraft noise abatement. The Report of the National Academy of Engineering, A Study of Technology Assessment,[296] of July 1969 includes a preliminary assessment of the following strategies:

- Continue Methods Used in 1967-69
- Relocate Airports
- Create Buffer Zone Around Airports
- Soundproof Residences
- Modify Aircraft Hardware and Flight Profiles

The Report concluded that "strategy No. 5, to modify aircraft hardware and flight profiles, has the greatest chance of success based primarily on noneconomic considerations."[297] The DOT-NASA CARD Study Report under Actions Recommended states:

> If civil aviation is to meet the expected growth in demand for air transportation, a new approach to aircraft noise abatement is necessary. This approach must provide for research goals based not on what is technologically feasible but on what is needed to satisfy community environmental goals.[298]

Among those "actions" recommended to achieve the research goals and establish future regulatory standards is the following:

> Expand the current federally funded aircraft noise abatement program. The initial step would be a comprehensive 10-year Aircraft Noise Abatement Program Plan incorporating activities of DOT, NASA, HUD, HEW, and the Environmental Protection Agency. This plan should clearly delineate the roles and areas of responsibility of the participating agencies and require commitments from these agencies to support these activities with the appropriate resources, consistent with funding limitations.[299]

The study of the National Academy of Sciences on Jamaica Bay and Kennedy Airport (1971) states that aircraft noise is perceived as a major environmental hazard by residents in communities surrounding commercial airports[300] and concludes that "The construction of new runways will not significantly reduce the number of residents of nearby areas exposed to intense aircraft noise"[301] and that "major reduction in noise exposure can come only from use of quieter aircraft."[302] In elaboration the study states that:

> A significant improvement in the noise environment around Kennedy Airport can be produced only by equipping aircraft with less noisy engines. If engine noise were reduced to levels consistent with the projections of the National Aeronautics and Space Administration "quiet engine" development program, which is estimated to be 10 EPNdB (effective perceived noise level) below present FAA standards for new engines, the number of people exposed to NEF 30 would be reduced dramatically from about 700,000 to 60,000, even if present runways were used. While the use of quieter engines would not eliminate the noise problem in communities surrounding Kennedy Airport, it would so reduce its severity as to permit the implementation of a long-range plan for completely compatible land use in the environs of the airport. Until aircraft are equipped with quiet engines, compatible land use is not a realistic possibility within the foreseeable future.[303]

This study further recommended that the DOT should "Require the installation of acoustically treated nacelles on all existing aircraft by 1975"[304] and "establish a regulation requiring that all new aircraft have engines that are quieter by 10 EPNdB . . . below present standards by 1975."[305] Recommendations were also made relative to the establishment and enforcement of new building construction standards "that protect the health and welfare of occupants against aircraft noise."[306]

The significant import of the recited findings and conclusions from the foregoing reports is that legal concepts and techniques constitute only one of multiple inputs required for an overall program of aircraft noise abatement. The need for a comprehensive interdisciplinary approach was recognized several years ago by the OST Panel on Jet Aircraft Noise in Conclusion 17 of its report:

> Conclusion 17. In view of the general pessimism as to how much near term noise reduction can be achieved by further R&D focused on the engine and aircraft, or by additional modifications of flight procedures in the vicinity of airports, and because of the apparent general inadequacy of zoning authorities and financial resources for other routes to accelerated attainment of more compatible land uses, it seems that some new combination of the available tools--condemnation authorities, police powers, program controls, and/or financial assistance by Federal and State governments--will need to be devised for attacking the aircraft noise problem particularly in those communities where it is rapidly becoming more acute.[307]

It would seem that the new California aircraft noise abatement regulatory scheme comes closest to implementing the OST rationale.

Section 5000 of the statute states explicitly that the standards are based upon two separate legal grounds: 1) the power of airport proprietors to impose noise ceilings and other limitations on the use of the airport, and 2) the power of the state to act to an extent not prohibited by federal law. Section 5003 provides that "noise limits specified herein are not intended to prevent any local government to the extent not prohibited by federal law or any airport proprietor from setting more stringent standards." Perhaps most significant is section 5011 which assures a large measure of flexibility and discretion to airport operators, aircraft operators, local communities, counties, the State, and other interested parties so that they "can work together effectively to reduce and prevent airport noise." Methods approved (though not exclusive) include:

- Encouraging use of the airport by aircraft classes with lower noise level characteristics and discouraging use by higher noise level aircraft classes;
- Encouraging approach and departure flight paths and procedures to minimize the noise in residential areas;
- Planning runway utilization schedules to take into account adjacent residential areas, noise characteristics of aircraft and noise sensitive time periods;
- Reduction of the flight frequency, particularly in the most noise sensitive time periods and by the noisier aircraft;
- Employing shielding for advantage, using natural terrain, buildings, et cetera; and
- Development of a compatible land use within the noise impact boundary.

Clearly, certain California officials who are familiar with the State's effort to abate aircraft noise and also knowledgeable about airport operations are convinced that appreciable abatement can be accomplished through exercise of the proprietorship authority and by State and local programs which do not impinge on Federal control of in-flight operations.[308] Even though most of the techniques of abatement available to the States or municipalities or to the airport operator as proprietor may be of only marginal utility, at least over the short term, it can be expected that efforts of some sort will persist. After all, the noise-abused citizens are real people in identifiable communities who are becoming more and more insistent that effective abatement action be taken. Since the Federal policy has consistently stated that the Federal government has not completely preempted all control over techniques of aircraft noise abatement but has left certain areas of regulation to the States, it can be expected that the high density air traffic states will continue to impose abatement measures of some sort. If Federal action (and court decisions) gradually but persistently reduce State and local control over aircraft noise abatement until it approaches the vanishing point, then the Federal government will be hard put to refuse to accept all or a large measure of the liability obligation with which the airport operator is now saddled. Yet, practically speaking, there would still remain a need for State, local and private initiatives (in terms of systematic regulatory schemes and techniques of abatement) even if the Federal government should accept full responsibility for liability resulting from private suits. Furthermore, as previously noted, many State officials feel that there are useful steps which can be taken at the State, local or proprietorship level to curb unnecessary aircraft noise. At the very least it is felt that initiatives such as that by California have been influential in getting more movement toward effective noise abatement at the Federal and State levels and in stimulating and institutionalizing public response at the State and local level.

Nevertheless, it is of some significance to note that two recent studies of aircraft noise and airport noise regulation come to the somewhat disillusioning conclusion that the ultimate recourse, namely the courts, may be the only means of compelling appropriate attention to the full range of social interests affected by such noise pollution. In the article "A Noisy Airport is a Damned Nuisance" the authors state:

> It is time to call a halt. In fact, it is long past time to do so. We are living in a time when the noise problem has grown so severe that otherwise normal American housewives are threatening to counter-attack with bombs, barrage balloons, or baby buggies, those airports which have forced their schools to close and their children to shriek in terror as the jets fly unconcernedly overhead. This may be "progress" as some define that term, but it is certainly not civilization. If "progress" must be slowed in order to civilize it, then it will have to be slowed--and it must be

> slowed now. All who live in our modern society must, to some extent, adjust their lives and habits to the needs of others. So far, all of the "adjustment" has come from the airports' neighbors.
>
> If other public and private decision makers do not shut off the noise, then it is up to the courts to order it stopped, or order the purchase of noise-devastated property, or order the operational methods of the aircraft and airports altered until such time as the technology of silence catches up with the technology of speed and power.
>
> To date, there has been a tragicomic display of buckpassing. The airports blame the airlines for wanting speed and the manufacturers for providing it. The airlines blame the public for wanting speed, the manufacturers for providing it and the airports for inappropriate runway location. The manufacturers blame the airlines, the public and the airports. The airports fault the FAA for not exercising its authority. The FAA says that's a local problem.[309]

In more succinct form the Airport Study Group of the Harvard Environmental Law Society concludes:

> Of the many institutions able to respond to the aircraft noise problem, courts are least suited to evaluate the merits of each approach. Although the judicial process is unlikely to produce a final resolution of the broader social and economic issues, it may stimulate more appropriate institutions like administrative agencies to effect a resolution of the relevant problems.[310]

The emphasis on the need to resort to the courts in order to assure prompt and effective noise abatement may not at all be misplaced. While it is suggested above that the main implication of Griggs was to place liability for aircraft noise on the airport operator, it is the adjacent airport resident who not only absorbs the detrimental impact but who must also bear the burden of initiating remedial action. Put otherwise, without a policy and implementing program involving the Federal Government, airport operators or scheduled air carriers which could initiate satisfactory preventive (removal) or remedial (purchase of avigational easements) action in the first place for affected residents or businesses within intolerable noise contours, the crucial effect of Griggs is to place the real burden on the noise-abused resident or business man. A suit is usually the only means by which he can even get public notice of his injury, let alone satisfactory action.

2.4.2 Regulatory Schemes for Abatement and Control of Environmental Noise Sources and Effects other than Aircraft Noise

A. Analytical Framework

This subsection will undertake to place those aspects of the environmental noise regulatory scheme previously discussed in Subsection 1, along with the regulation of various non-aircraft noise sources and effects, into a perspective which will sharpen the issues which improved regulatory designs should take into account.

Attention will be given, on a selective basis, to certain of the following topics in this subsection (2.4.2):

> What trends do the cases show with respect to the recognition by the courts of noise as a cause of injury to person or property which will be compensated in an action for nuisance or trespass or on the theory of a Constitutional "taking" or a State constitutional "taking or damaging" or for which full or modified injunctive relief might be available?
>
> What trends do the cases show with respect to actions brought pursuant to municipal noise control ordinances in terms of:
>
> 1. **Authority asserted to justify enactment of the ordinance?**
> 2. **Limitations of authority recognized or asserted with respect to such ordinances?**

a. Preemption by Federal or State legislation
b. Preclusion by terms of state constitution
c. Due Process limitations:

    1) Not reasonable means to a legitimate end
    2) Discriminatory and violative of equal protection
    3) Vagueness

d. Encroachment on free expression (1st Amendment)
e. Encroachment on other individual liberties
f. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
g. Technological feasibility
h. Economic reasonableness
i. Undue burden on interstate commerce

What are the legislative trends at the state level with respect to noise source and effects regulation?:

1. Authority asserted to justify enactment of the legislation?

2. Limitations of authority likely to be asserted with respect to such statutory schemes?

    a. Preemption by Federal legislation

        1) Field completely preempted
        2) More stringent standards precluded

    b. Due Process limitations:

        1) Not reasonable means to a legitimate end
        2) Discriminatory and violative of equal protection
        3) Vagueness

    c. Encroachment on free expression
    d. Encroachment on other individual liberties
    e. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
    f. Technological feasibility
    g. Economic reasonableness
    h. Undue burden on interstate commerce

3. Implications for local noise regulation with respect to:

    a. Criteria and standards
    b. Participants affected
    c. Implementing techniques
    d. Enforcement procedures
    e. Remedies and penalties
    f. Local ambient noise levels

4. Implications of noise level standards on judicial determinations of a Constitutional taking or of a State constitutional "taking or damaging"

What are the legislative trends and proposals at the Federal level with respect to noise source and effects regulation:

1. Authority asserted to justify the enactment of the legislation?

2. Limitations of authority likely to be asserted with respect to Federal noise regulatory schemes?

    a. Due Process limitations

        1) Not reasonable means to a legitimate public need
        2) Discriminatory and violative of equal protection
        3) Vagueness

    b. Encroachment on free expression
    c. Encroachment on other individual liberties
    d. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
    e. Technological feasibility
    f. Economic reasonableness
    g. Invasion of State and local police power

3. Implications for State and local noise regulation with respect to:

    a. Standards setting
    b. Use, operation, and movement of noise sources
    c. Participants affected

   d. Implementing techniques
   e. Enforcement procedures
   f. Remedies and penalties
   g. State and local ambient noise levels

4. Implications of noise level standards on judicial determinations of a Constitutional taking or of a State constituional "taking or damaging"

B. Private Actions: Suits Grounded in Nuisance, Trespass, and Compensable Taking or Damaging

The legal concepts of trespass, nuisance, Constitutional taking and State constitutional "taken or damaged" provisions have been discussed in subsection 2.1.1 supra.

The observations of Professor Milton Katz in subsection 2.1.1 supra are directly relevant to the application of private tort actions as a means of abating or controlling environmental pollution in all its various ramifications. While he notes that such actions may provide an incentive to defendant pollution sources (including noise sources) to introduce more effective managerial methods or improved technology in order to reduce pollution emissions, he also finds that "there are serious obstacles to the effective use of private tort actions against the source enterprises under existing law."[311] He concludes:

> In sum, I believe that private civil actions based on common law remedies, especially if and as they may be supplemented and reinforced by new legislation, can serve as one important factor among many in the implementation of technology assessment and in the protection of the environment. I stress equally that private civil actions at best can constitute only one important factor among many.[312]

Noise clearly has physical attributes but courts have tended to consider noise as an "intangible" intrusion, in contrast to a conventional physical trespass, or an "unmeasurable" nuisance. It is also easy for the courts to dispose of noise complaints as grievances suffered by the public in general rather than having distinguishable effects on particular complainants. In Mathewson v. New York State Thruway Authority[313] residents of a village brought an action against the Authority to compel it "to prohibit the use of the Thruway by trucks, busses, and tractor-trailers through the village during the hours between 8 o'clock in the evening and 8 o'clock in the morning."[314] In affirming the Appellate Division, the New York Court of Appeals referred to the action of the Appellate Division in stating that it:

> . . . held that the complaint was insufficient, where it did not appear from the complaint that the noises emanating from the normal operation of the Thruway adversely affected the village residents, who brought the action, more than any other property owners similarly situated, or that the noises subjected the village residents, who brought the action, to a greater share of the common burden of incidental damage cast on all those living in the vicinity.[315]

Courts are also concerned with defining the limits of liability should they take a more favorable attitude toward noise-abused complainants. The task of identifying the nature and extent of the effects of noise as well as identifying the principal offenders among multiple noise sources, and especially moving noise sources, obviously poses a difficult practical problem for the courts. It should come as no surprise, therefore, that courts have found various legal devices for disposing of such complaints. In a 1965 Washington State case[316] a hospital sought to enjoin the State Highway Commission from constructing a freeway in such close proximity to the hospital as to constitute an alleged nuisance. The hospital was the owner of property abutting on the proposed freeway and it alleged that "the noise and fumes of traffic from the proposed freeway, together with projected interference with established access routes, would invade and restrict the peaceable enjoyment of the hospital properties, constitute a nuisance in fact, and cause substantial damage to respondent's property rights."[317] The suit was not brought on the theory of inverse condemnation.[318] The lower court granted injunctive relief. The State Supreme Court did not find a nuisance:

> The freeway is to be built not only under general statutory authority of the highway statutes, but also pursuant to specific enactment of the legislature establishing the highway as state primary highway No. 2. . . . No claim is made that the highway derives its nuisance qualities from faulty design or negligence in construction or that it will be improperly maintained. The fact of nuisance found to exist in future by the court comes directly from the consequences of proximity. Deaconess Hospital wishes to enjoin the highway -- not generally as a nuisance but specifically within 300 feet of its buildings. Our legislature seems to have anticipated this very situation, for in 1881 . . . it re-enacted the following: "Nothing which is done or maintained under the express authority of a statute, can be deemed a nuisance."[319]

With respect to noise abatement through nuisance actions the general conclusion of Professor Katz apparently holds since such actions do not appear to provide an effective means of overall environmental noise control. Nevertheless, over the years numerous suits have been initiated against a variety of community noise source activities which interfere with the use and enjoyment of property.[320]

There is a more perceptible trend for courts to recognize the damages resulting from noise intrusion in the "taking" cases. In addition to the aircraft noise inverse condemnation suits which appear to be on the increase, there are also numerous suits being brought on the theory of inverse condemnation or for determination of appropriate elements of damages incident to customary eminent domain proceedings for highway construction. These cases are significant not only for reason that the Interstate Highway system has criss-crossed the Nation but for reason that the availability of the Highway System has produced increased density of vehicular traffic - a major source of environmental noise. Some of the more recent cases involving highway construction and highway use noise are the foci of the following discussion.

The traditional attitude of the courts has been to view highway/vehicular environmental pollutants, including noise, as incidental to the principal needs and functions of a progressing technological society and, hence, as adverse side-effect in which we all must share without complaint. In a 1931 Arkansas case the Supreme Court of that State, in considering the complaint of an abutting property owner to a new highway bridge, stated:

> It is alleged that the grade of the highway was changed so that the bridge and the approaches thereto are higher than the plaintiff's house, and thereby obstructs the free course of light and air thereto. Some damage is alleged to have been caused by the construction of the lights on the bridge which shine throughout the night into the dwelling

> house of the plaintiff. We do not think the plaintiff, however, should recover anything for noise, dust, and matters of that sort, which, in varying form, are incidents to living upon a public highway or street, and, as such, must be borne by all owners of abutting property.[321]

In addition to the Arkansas case cited above, several other State courts have held that damage alleged from noise with respect to highway construction and use is not compensable where there has been no physical taking of any of complainant's property. In a 1960 California eminent domain proceeding the Supreme Court of that State, in the case of Department of Public Works v. Symons,[322] quoting the earlier case of Eachus v. Los Angeles, stated the general rule of that State:

> The Constitution does not, . . . authorize a remedy for every diminution in the value of property that is caused by a public improvement. The damage for which compensation is to be made is a damage to the property itself, and does not include a mere infringement of the owner's personal pleasure or enjoyment. Merely rendering private property less desirable for certain purposes, or even causing personal annoyance or discomfort in its use, will not constitute the damage contemplated by the constitution; . . . .[323]

The Court continued:

> It is established that when a public improvement is made on property joining that of one who claims to be damaged by such general factors as change of neighborhood, noise, dust, change of view, diminished access and other factors similar to the damages claimed in the instant case, there can be no recovery where there has been no actual taking or severance of the claimant's property.[324]

Subsequent California cases have served to buttress this position. In Department of Public Works v. Presley[325] the court denied compensation to an abutting property owner (also the owner of the tract condemned), alleging injury which would result from an increase in noise, fumes, and annoyances from increased traffic on the developed freeway. The court stated:

> We have express precedent in California opposing defendant's (original claimant) contention. In City of Berkeley v. Von Adelung, supra (1963), 214 Cal. App. 2d 791, 29 Cal. Rptr. 802, the city in rounding off the angle of a street corner took a portion of defendant's corner lot. "Defendant offered to prove that the effect of the project as a whole would be to approximately triple traffic past defendant's lot, with resultant increase in fumes and traffic noises." (At pp. 792-793, 29 Cal. Rptr. at p. 803). The court held that any decrease in the value of defendant's remainder because of this was uncompensable: that it was an inconvenience "general to all property owners in the neighborhood, and not special to defendant." (p. 793, 29 Cal. Rptr. p. 803).[326]

In Lombardy v. Peter Kiewit Son's Co.[327] property owners brought an action against the State and a highway contractor for damages claimed to have been sustained as a result of construction and operation of a freeway, the California Court of Appeals, 2nd Division stated that:

> The mental, physical and emotional distress allegedly suffered by plaintiffs by reason of the fumes, noise, dust, shocks, and vibrations incident to the construction and operation of the freeway does not constitute the deprivation of or damage to property or property rights of plaintiff's for which they are entitled to be compensated.[328]
>
> There can be no recovery where there has been no actual taking or severance of the claimant's property.[329]

After finding that the complaint failed to state a cause of action in inverse condemnation, the Court considered the allegation that the construction and use of the highway constituted a nuisance. The Court displayed little sympathy to this claim noting that:

> All householders who live in the vicinity of crowded freeways, highways and city streets suffer in like manner and in varying degrees. The roar of automobiles and trucks, the shock of hearing screeching brakes and collisions, and the smoke and fumes which are in proportion to the density of the motor vehicle traffic all contribute to the loss of peace and quiet which our forefathers enjoyed before the invention of the gas engine.[330]

Explaining that state highways are constructed and maintained under the authority of the State constitution, the Court recited the Civil Code which provides that "Nothing which is done or maintained under the express authority of a statute can be deemed a nuisance."[331]

Other States which have considered the question of allowing recovery for noise intrusion from highway construction and operation on abutting landowners tend to follow the cases cited above.[332] For example, in the 1966 Georgia case of Richmond County v. Williams,[333] the suit had been initiated by a homeowner for damages to his house resulting from nearby highway construction and pile-driving. The complainant also alleged that the "presence of the highway in such close proximity to their house has rendered it unfit for residential use by reason of the attendant noise of the engines of large diesel trucks, horn blowing and the glare of headlights from passing automobiles and trucks."[334] The Georgia State Court of Appeals held that damages for depreciation of property resulting from physical damaging (Georgia is a "taken" or "damaged" state) was clearly recoverable, but "the elements of inconvenience, etc. resulting from the noises of engines, horn blowing, glare of lights and the like from passing traffic on the highway are not recoverable."[335]

However, in the 1970 case of Cheek v. Floyd County, Georgia[336] decided by the U. S. District Court, N.D. Georgia, pursuant to Georgia law, it was held that in an action for damage to property resulting from highway construction, that an abutting property owner could recover for loss of access, noise, fumes, and light beams resulting from the construction. The court noted that the injuries complained of did not involve a taking but only a "damaging" of property and hence, that the elements of "damage" must be determined. The court observed that whether noise, fumes, and light beams are compensable elements presents a serious question and that "the Georgia cases are not clear on the compensability of (such) elements . . . ."[337] It was further stated:

> To the extent that these elements could be classed as instances of mere inconvenience or instances suffered by the public in general along the project, then no compensation would be allowed. But beyond this, can these elements be considered as compensable? The Georgia cases dealing with these elements are not numerous. However, the recent case of State Highway Department v. Hollywood Baptist Church of Rome, supra, indicates that noise may be considered in determining damages if it is shown that the noise is a continuous and permanent incident to the improvement to be made and that it in fact specially affects the market value of the property.[338]

Only a nominal amount of $1,000 was awarded as "Permanent nuisance damage," the Court stating that "any depreciation in value from noise, lights, etc. is minimal as it could exceed that of other property owners only slightly."[339]

While the courts have not tended to recognize noise damages to property owners whose tracts are adjacent to a highway right-of-way but whose property has not actually been physically taken, the states have adopted differing positions with respect to noise intrusion where there has been a partial, physical taking of the plaintiff's property. In a 1963 Kentucky case, the State Department of Highways moved the right-of-way 66 feet closer to a drive-in theatre, condemning this segment of the theatre's property.[340] The Kentucky Court of Appeals affirmed a lower court judgment which awarded compensation for the property taken and for resulting damages to the remainder. The Court said in part with respect to witnesses for the theatre:

> However, as we read their testimony these witnesses did not base their estimates of values on any considerations of past or future profits of the particular theatre here involved, but upon the effect a close location to a highway has upon the business of drive-in theatres generally . . . . In effect the witnesses here testified that noise and lights resulting from close proximity to a highway will cause a loss of income to a drive-in theatre, thus depreciating its market value. We think the testimony was competent.[341]

In Mississippi State Highway Commission v. Colonial Inn, Inc.[342] the Highway Commission condemned a five foot strip of plaintiff's land (leasehold interest on motel property) and a dispute arose as to the elements of damage to be considered. The State Supreme Court explained its concept as follows:

> In the instant case, part of the owner's land has been taken. The remainder abuts on the highway, and defendants (original plaintiff) are entitled to compensation for injuries to it caused by the noise, vibrations, and increased proximity of the highway traffic allocated to the additional land taken. Compensation for such injury is allowed, not as a distinct element of damages, but only as affecting the market value of the property. Moreover, the injury must be special, and not such as is common to all the property in the neighborhood.[343]

And in the South Carolina case of State Highway Department v. Touchberry[344] involving a condemnation proceeding, the Supreme Court of that State affirmed a lower court which submitted to the jury four factors for assessing compensation claimed by the landowner as elements of damage (traffic noise, loss of breeze, loss of view, and circuity of travel). The Department claimed that submission of these four factors was error. With respect to traffic noise, the defendant contended that construction of the highway near the plaintiff's residence did not constitute special damage because there was no showing that the alleged injury was special and peculiar to the plaintiff as contrasted with noise intrusion commonly suffered by others with homes in close proximity to the highway. The Court based its refusal to grant a new trial to the defendant on the applicable rule quoted from the decision of South Carolina State Highway Department v. Bolt:

> "When a part of a parcel of land is taken by eminent domain, the owner is not restricted to compensation for the land actually taken; he is also entitled to recover for the damage to his remaining land. In other words, he is entitled to full compensation for the taking of his land and all its consequences; and the right to recover for damage to his remaining land is not based upon the theory that damage to such land constitutes a taking of it, nor is there any requirement that the damage be special and peculiar, or such as would be actionable at common law; it is enough that it is a consequence of the taking. The entire parcel is considered as a whole, and the inquiry is, how much has the particular public improvement decreased the fair market value of the property, taking into consideration the use for which the land was taken and all the reasonably probable effects of its devotion to that use." (Emphasis added.)[345]

Further, in a recent California case of inverse condemnation, the Court of Appeal, Second District, affirmed a lower court which permitted the jury "to consider the property's loss of view and relatively unrestricted access to the beach in determining severance damages."[346] The opinion states in this connection:

> Where the property taken constitutes only a part of a larger parcel, the owner is entitled to recover, inter alia, the difference in the fair market value of the remaining portion thereof after the construction of the improvement (here for freeway) on the portion taken. Items such as view, access to beach property, freedom from noise, etc. are unquestionably matters which a willing buyer in the open market would consider in determining the price he would pay for any given piece of real property. Concededly such advantages are not absolute rights, but to the extent that the reasonable expectation of their continuance is destroyed by the construction placed upon the part taken, the owner suffers damages for which compensation must be paid.[347]

There are cases to the contrary, however, of which the Missouri cases are illustrative. In a 1963 condemnation case, State Highway Commission v. Turk,[348] the Supreme Court of that State held it to be reversible error for the lower court to have permitted testimony relating to noise and traffic as elements of damage. The Court stated:

> It appears to be settled in this state that "the amount of noise and speed of the traffic on the highway are not proper elements to be taken into consideration in arriving at the damage resulting from condemnation of land for State Highway uses or for railroad uses.[349]

In the 1965 condemnation suit of State Highway Commission v. King Brothers Motel, Inc.,[350] the St. Louis Court of Appeals cited the Turk case and stated:

> (I)t was there held that the amount of noise on the highway is not a proper element to be taken into consideration in arriving at the damage resulting from the condemnation of land for highway uses. We must therefore agree with plaintiff that the court erred in admitting evidence as to the factors of traffic and noise on the outer roadway.[351]

But there seems to be language, supported by one line of Missouri cases involving compensation for diminished property value, which is referred to both in the King Brothers Motel case[352] and the 1966 case of State Highway Commission v. Galeener[353] which could provide a plausible rationale for introduction of the noise factor into the assessment of damages if and when the Missouri courts wish to depart from the Turk rule.

The 1968 New York case of Dennison v. State may prove to be one of the more significant developments in the judicial treatment of noise as a compensable element in a partial taking with respect highway construction and highway vehicular noise. The lower court, in proceedings on a claim for appropriation of a portion of claimant's homestead which was "entirely secluded, quiet and peaceful," considered noise as a factor in determining the award for consequential damages. The lower court did not make a separate award for damages due to noise but considered it as one factor in determining the decrease in the value of the remaining property. On appeal, the State argued that this procedure for determining damages was error. The State also asserted that alleged elements of damage which are not peculiar to the owner of the remaining property but suffered by the public in general should be excluded from consideration, and further:

> Thus, the State points to the fact that where there has been no partial taking of property, an owner whose property adjoins a public highway would not be entitled to damages resulting from the depreciation of his property due to the noise of cars and trucks passing on the highway (citing several New York cases) . . . Therefore, a property owner should not be entitled to compensation for such damages merely because of the fortuitous circumstance that a portion of his property was needed to construct the highway.[355]

Even though the State conceded that "where there is a partial taking, consequential damages which ensue upon the taking are to be considered in determining the award,"[356] the State also contended that a determination must be made as to "which portion of the diminution in value was due to loss of privacy and view and which portion was due to noise."[357] The Court of Appeals majority opinion replied to this contention as follows:

> This does not answer the question and is clearly contrary to cases in this and other jurisdictions which have recognized that, where there has been a partial taking of property of the kind present here, the noise element may be considered as one of several factors in determining consequential damages. (citing cases from Pennsylvania and Nebraska)[358]

The majority affirmed the order of the Appellate Division, but several questions were raised by the concurring and dissenting opinions. Judge Fuld, concurring, said that "I agree with Judge Keating (majority) and would simply add that we are not, contrary to intimations in the dissenting opinion, 'accept(ing) future traffic noise as an element of consequential damage."[359] But this point is not elaborated upon so as to indicate just how "future traffic noise" is distinguishable from the noise factor approved by the controlling opinion. Judge Fuld also makes an explicit point of the uniqueness of the property here involved, comparing it to hospitals and cemeteries, emphasizing that the distinguishing factor "is the quietude, the tranquility and the privacy of the property, qualities which the claimant prized and desired and which undoubtedly are items that would be taken into account by an owner and a prospective purchaser in fixing the property's market value."[360]

The dissenting opinion of Judge Bergan questions whether "future traffic noise is a legitimate part of consequential damages at all," in view of the "very universality of traffic noise."[361] And he found it difficult to "support the justice of a distinction between a man from whom a small slice of land is taken for a road who may get damages for future traffic noise and a man who is just as near the road and suffers every bit as much damage but from whom no land is taken."[362] Rather than "unrestricted acceptance of this enlargement of public liability," Judge Bergan suggested a requirement, not imposed by the majority, that the party seeking damages "show himself injured in a special way, not shared by the general public, e.g., a hospital, a school, a church."[363]

Two subsequent New York cases which have considered *Dennison* have applied qualifications to its application. In *Fleetwood Synagogue, Inc. v. State*,[364] the Court of Claims held that noise was an element to be considered in the determination of consequential damages where there had been a partial taking for highway construction. But the opinion emphasizes the "special property" involved, here a house of worship, and quotes from both the concurring and dissenting opinions in *Dennison*.[365] In a 1971 case, *Bronxville Palmer Ltd., v. State*,[366] involving a partial taking for highway construction, the Supreme Court, Appellate Division (3rd Department) held that the Court of Claims erred in considering "the loss of privacy and quiet, loss of view, light and air, exposure to traffic noise, light and odors" as adverse factors in the determination of consequential damages, the court stating:

> (T)he Court's (Court of Claims) reliance on Dennison to support the other elements of consequential damages (noted above) is inappropriate, since the location of subject property admittedly on two "principal thoroughfares" in Yonkers, was a far cry from the "entirely secluded, quiet and peaceful" setting pictured in Dennison . . . nor was this ten story apartment enterprise in a busy, highly populated area a property possessing the "quietude, the tranquility and privacy" prized and desired in Dennison.[367]

This review of recent highway construction and traffic noise cases discloses a strong continuing reluctance of the judiciary, with some exceptions, to expand legal recognition of injury from noise sources. Courts tend to dismiss claims of injury (effects) which cannot be demonstrated in terms both understandable and susceptible to measurement by the court or a jury. Noise is a complicated and elusive phenomenon. Excessive noise may be caused by multiple moving sources rather than an easily identifiable stationary source. Noise may be only one of numerous concurrent annoyances (dust, bright lights, fear) which cumulatively may amount to excessive interference with the use and enjoyment of property. Noise and other irritants affect different people and different property owners in varying degrees. Clearly, these factors give the courts concern. The existence of these characteristics is the reason that courts have generally been more likely to permit evidence of excessive noise where there has been an actual taking initiated by the State since this provides a means of limiting legal recognition of noise injury to identifiable claimants.

The increasing public reaction to excessive noise is placing considerable strain upon the more conventional noise doctrines, however. Doctrine being developed in the aircraft noise cases will inevitably have increasing effect on claims of noise injury from other noise sources. Some of the emerging issues were placed in sharp focus by the 1968 Florida inverse condemnation case of Northcutt v. State Road Department,[368] wherein an abutting property owner who suffered damages from highway construction was denied damages resulting from noise, dust, and vibrations. The opinion states:

> They (plaintiffs) claim that the defendant placed the limited access right-of-way to interstate highway very close to their real property. They alleged that the constant use of the quiet residential side street as an access road to the highway by earth moving equipment, dump trucks, concrete mixers, cranes, bulldozers, machinery, etc. during and after the construction of the interstate highway was a direct, and proximate cause of certain damages to their house and real property; thus causing the house to become structurally unsound and uninhabitable, and that their damage was irreparable and continuing. They alleged that the defendant had constructed, maintained and operated the interstate highway so as to cause heavy industrial and commercial traffic to use it so near their property as to cause excessive shock waves, vibrations, and noises, at all hours of the day and night which impaired their health and caused them to lose sleep, become ill and nervous and deprived them of the use and aesthetic beauty of their property, causing it to lose its value for residential purposes so that it cannot be sold or financed for any use or purpose.[369]

The plaintiffs relied primarily upon the case of *City of Jacksonville v. Schumann*[370] wherein a complaint for inverse condemnation was filed by 57 property owners adjacent to the municipally owned Imeson Airport. Injunctive relief was granted for reason of noise and vibration nuisance originating with aircraft using the field. According to one commentator "Florida case law . . . seems clearly to require the physical invasion or trespass necessary for a taking before relief or damages will be afforded to adjacent or abutting landowners."[371] He continues with respect to the *Schumann* case:

> The physical trespass of the low-flying aircraft was considered only incidentally, this case introduced Florida to the increasing line of "airport cases," a major inroad in limiting the unconstitutional taking of property, and seemed to form a basis for valid extension into other takings by nuisance. In fact, in the later appeal from the final decree in *Schumann*, the court maintained that Florida is now committed to the view adopted in the airport cases that noise and vibration can be a nuisance and that such nuisance can give rise to an easement for which compensation must be paid.[372]

But in *Northcutt*, the District Court of Appeal of Florida (3rd District) did not accept the doctrine of *Schumann*, but undertook to distinguish the factual situations:

> We think there is a substantial difference between the use of an airport by airplanes and the use of highway and access roads by motor vehicles. The noise intensity factor is different; the safety factors are different; and the use factors are different. . . . An airport may be placed at a considerable distance from a city while it is a public necessity for roads and highways to be built close to, or directly through a city, and sometimes through its most heavily populated areas.[373]

The court pointed out that the Florida constitution does not provide just compensation to the property owner for "damage" to his property. It did not find the complainants to be situated differently from "thousands of their fellow country men whose homes abut highways and railroads and who endure the noise without complaint."[374] It is of interest to note that Nichols on Eminent Domain (§14(1)) is cited for the "general rule"[375] to support the court's holding (based on Nichols' quoting of a Florida case) whereas the above mentioned Florida Law Review commentator quotes Nichols on Eminent Domain as follows:

> The modern and prevailing view is that any substantial interference with private property which destroys or lessens its value, or by which the owner's right to its use or enjoyment is in any substantial degree abridged or destroyed, is . . . a "taking" in the constitutional sense, to the extent of the damages suffered, even though the title and possession of the owner remains undisturbed.[376]

The commentator asserts that "Under this construction, there need not be a physical taking of the property or even dispossession. Any substantial interference with basic rights growing out of ownership of private property is considered a taking."[377] He notes, however, that the "courts seem to fear an overwhelming volume of claims upon extending the compensation for a de facto taking of adjacent property,"[378] and concludes:

> It is apparent that the consequential damage and physical trespass limitation currently in vogue in many states is an attempt to draw an arbitrary line to prevent frivolous

claims. But it is at least arguable that yesterday's frivolous claim may have become both real and justified today because of the increased potential of automotive noise and vibration.[379]

C. Noise Regulation Through Municipal Ordinances

In previous Sections (2.1.1, 2.1.2, and 2.4.2B) the basic legal rationales for the initiation of private suits against noise sources in both the private and public sector have been discussed. The focus here is on local control of environmental noise by means of municipal ordinances. A succinct summary by Lewin provides an introduction to this discussion:

> Excessive noise can cause loss of hearing or a hearing impairment; at less offensive levels it interferes with speech or can cause tension and anxiety. Aside from the physical effect on an individual, excessive noise can adversely affect one mentally. Courts have allowed recovery for pain, suffering, discomfort, inconvenience, and financial loss caused by noise. Recovery has also been permitted where noise has caused the death of animals, structural damage to buildings, and adverse psychological consequences, including a general detriment to persons, property values, and the quality of life.[380]
>
> Private nuisance suits, though quite common, are not, however, an effective way of preventing urban noise problems. Private individuals cannot be relied upon to bring suits against all noise makers: private noise litigation is often so expensive that court action is not warranted; city noises often come from unidentifiable sources; judges are usually reluctant to restrain noises unavoidably created by business, government, or government-authorized groups. Furthermore, even though private remedies might solve the individual's noise pollution problem, these remedies usually do not solve the Urban noise problem.[381]

Lewin in his chapter on "Noise Pollution" in Law and the Municipal Ecology classifies local ordinances according to 1) ordinances to preserve the public peace and tranquility; 2) ordinances to abate noise as a nuisance; and 3) use-by-category zoning ordinances.[382]

The authority for each type of ordinance would, of course, be based on the police power of the municipality as an instrumentality of the state.[383]

Peace and tranquility have been protected by ordinances prohibiting drunk, noisy and disorderly conduct, unnecessary blowing of locomotive whistles within the corporate limits, and by regulating the beating of drums or other noise sources on the city streets.

Ordinances to abate noise as a nuisance "more or less follow the law of nuisance as developed at common law and in equity."[384] It is the task of the courts to determine whether the standard provided (such as "excessive" or "unnecessary noise") is constitutionally supportable, whether the activity controlled or regulated has been preempted by State or Federal laws or regulations, and if applicable in light of the first two considerations, whether the traditional common law elements of a nuisance have been met in the particular case. Such ordinances apply specifically to or have been alleged to apply to such activities as merry-go-rounds, roller coasters, noise created by the activities of a dance hall, the operations of steelyards, concrete mixing plants, motor vehicles on a drag strip, and the playing of musical instruments.[385]

In the 1970 North Carolina case of Jones v. Queen City Speedway, Inc.,[386] the State Supreme Court held that the plaintiffs (nearby residents to an auto race track) were entitled to a judgment restraining the operation of the track in such manner as to constitute a nuisance (because of lights, noise, and dust). The court found the following ordinance of the City of Charlotte to have been violated even though such ordinance was not invoked at the trial level:

> Section 23-30. Noises. Every use, activity and process shall be so operated that regularly recurring noises are not disturbing or unreasonably loud, and do not cause injury, detriment or nuisance to any person. Every use, activity and process in business and industrial districts shall be so operated that regularly recurring noises, as detected by the human sense of hearing, without instruments, at the adjoining residential or office district boundary lines, shall not exceed the normal noise level generated by uses permitted in residential and office districts.[387]

If this ordinance had been primarily relied upon by plaintiffs, a question as to the constitutionally of the standard, i.e., "that regularly recurring noises are not disturbing or unreasonably loud" might have been raised. Such alleged noise would have to be detected, "without instruments" and set against the suggested ambient noise standard, i.e., "normal noise level generated by uses permitted. . . ." It is somewhat puzzling why the Court introduced the ordinance into the opinion since it is clear that the elements of a common law nuisance would have to be shown in order to justify injunctive relief. In explanation the Court says:

> The mere violation of a municipal ordinance does not constitute a nuisance, but if the actual thing is a nuisance or in the nature thereof and it is done or maintained in violation of a municipal ordinance, it may constitute such nuisance as against which relief may be obtained by one who suffers special and peculiar injury of an irreparable nature therefrom.[388]

Somewhat more helpful is the Court's quotation from the case of Hooks v. International Speedway, 263 N.C. 686, 140 S.E. 2d 387 (1965):

> Where noise accompanies an otherwise lawful pursuit, whether such noise is a nuisance depends on the locality, the degree of intensity and disagreeableness of the sounds, their times and frequency, and their effect, not on peculiar and unusual individuals but on ordinary, normal and reasonable persons of the locality.[389]

Numerous types of zoning ordinances exist as noted in Subsection 1.4 and elsewhere in this Report which are designed at least in part, to regulate noise making activities, especially those of a manufacturing or industrial nature.[390]

There are, of course, a variety of ways of classifying municipal ordinances for the regulation of noise sources and effects other than the categories suggested by Lewin. The NIMLO Model Noise Ordinance sets forth various "acts" which would constitute a violation of the Model Ordinance. Greenwald has also presented a more refined classification than that of Lewin.[391]

The basic concern at this point is with the limitations on the exercise of the police power by municipalities in regulating noise making activities. For example, standards set forth in the ordinance may be challenged for being "unconstitutionally vague," and therefore void for lack of "due process," or as being discriminatory and violative of "equal protection of the laws." If the standard is found to be sufficiently definite to meet constitutional requirements, it may nevertheless be found that the ordinance is administered in a discriminatory manner. Even if these fundamental tests are met, other factors (and objections) must be considered. Does the ordinance encroach upon specific constitutional rights such as individual free expression or freedom to engage in desired activities or occupations? Objections may be raised as to whether a noise abatement ordinance may interfere unreasonably with public safety which is also a prime public policy goal.[392] Perhaps the most significant question of all is that of preemption of the "field" of regulation by the state or by the Federal government. This question is becoming increasingly critical as Federal, State and local jurisdictions undertake to regulate activities or to alleviate social problem areas which require, in some degree, action at all levels of government. At the national level there is not only the question of whether specific Federal legislation has preempted the field of activity covered by a local ordinance but the broader consideration of whether, absent Federal legislation, a given activity weighs so heavily as a national interest - as for example, the free flow of interstate commerce - that a state or locality is excluded from participation in regulation with respect to such activity. Conceivably certain standards might be alleged to be economically unreasonable or technologically infeasible and challenged as a denial of due process or as constituting an undue burden on interstate commerce.

Ordinances prohibiting or regulating the use of sound trucks raise several of the foregoing questions. In Saia v. New York,[393] a Lockport, New York, ordinance banning the use of sound amplification devices except for the dissemination of news items and "matters of public concern" provided that such activity could be engaged in only "under permission of the Chief of Police." The majority opinion, per Justice Douglas, stated:

> There are no standards prescribed for the exercise of (the Chief of Police's) discretion. The statute is not narrowly drawn to regulate the hours or places of use of loud-speakers, or the volume of sound (the decibels) to which they must be adjusted. . . . The right to be heard is placed in the controlled discretion of the Chief of Police. He stands athwart the channels of communication as an obstruction which can be removed only after criminal trial and conviction and lengthy appeal.[394]
>
> Loud speakers are today indispensable instruments of effective public speech. The sound truck has become an accepted method of political campaigning. . . . Any abuses which (they) create can be controlled by narrowly drawn statutes. When a city allows an official to ban them in his uncontrolled discretion, it sanctions a device for suppression of free communication of ideas.
>
> In this case a permit is denied because some persons were said to have found the sound annoying. Annoyance at ideas can be cloaked in annoyance at sound. The power of censorship inherent in this type of ordinance reveals its vice.[395]

In the subsequent case of Kovacs v. Cooper[396] involving a Trenton, New Jersey, ordinance which prohibited the use of any vehicles with sound amplifiers emitting "loud and raucous noises,"[397] Justice Reed in the principal opinion, in which he was joined by Justice Burton and Chief Justice Vinson, found that the standard of "loud and raucous" was not so vague and indefinite as to be properly enforced. In reference to this standard he stated that:

> While these are abstract words, they have through daily use acquired a content that conveys to any interested person a sufficiently accurate concept of what is forbidden.[398]

Other pertinent extracts from Justice Reed's opinion follow:

> The unwilling listener (to sound truck amplifiers) is not like the passer-by who may be offered a pamphlet in the street but cannot be made to take it. In his home or on the street he is practically helpless to escape this interference with his privacy by loud speakers except through the protection of the municipality.[399]
>
> The preferred position of freedom of speech . . . does not require legislators to be insensitive to claims by citizens to comfort and convenience. To enforce freedom of speech in disregard of the rights of others would be harsh and arbitrary in itself. That more people may be more easily and cheaply reached by sound trucks . . . is not enough to call forth constitutional protection for what those charged with public welfare reasonably think is a nuisance when easy means of publicity are open. There is no restriction upon the communication of ideas or the discussion of issues by the human voice, by newspapers, by dodgers. We think that the need for reasonable protection in the homes or business houses from the distracting noises of vehicles equipped with sound amplifying devices justifies the ordinance.[400]

Lewin reviews several cases subsequent to Kovacs involving efforts to regulate the use of sound amplifiers and loud-speakers in the streets and public places by means of municipal ordinances.[401] There has been a definite split in the cases although the fact situations, including the nature of the ordinances, have differed substantially. Where an ordinance requires a permit for the operation of a sound truck or similar device, the absence of uniform standards for issuance or denial of such permit, is without doubt constitutionally defective.[402] Such ordinances invite arbitrariness in application. Further, such standards as "the making of unnecessary noises" also invite arbitrariness in application and may be found to be unconstitutionally vague. Lewin asserts that:

> On the whole, noise ordinances will probably continue to raise constitutional questions of vagueness unless there is an absolute ban on noise above certain decibel levels (which would be adjusted for frequency variations), for certain times, at certain places. The new "decibel law" would seem to avoid the problem of vagueness by establishing objective standards.[403]

Yet, Lewin immediately qualifies the above statement in two respects. He discusses recent cases in which ordinances having no decibel standards have not been declared invalid, other than Kovacs,[404] and he points out the serious difficulties involved with the enforcement of ordinances having decibel standards.[405] Quantitative standards avoid the problem of unconstitutional vagueness but do not necessarily facilitate the enforcement of noise standards.[406]

Cases in non-First Amendment contexts tend to support ordinances which provide for verbal standards such as "unusual and excessive" or "loud and explosive" or "loud and unnecessary. . ." For example, in City of Dayton v. Zoller,[407] the Court of Appeals of Ohio upheld a city ordinance which provided in part:

> Exhausts. The discharge into open air of the exhaust of any steam engine, stationary internal combustion engine, motor boat, or motor vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom (is prohibited).[408]

The Court concluded:

> In our opinion, the ordinance of the city of Dayton under consideration is a valid enactment, and falls within the proper exercise of the police powers of the city. In the application of the reasoning in the Kovacs case, supra, we hold that the ordinance designates the act which is made an offense with sufficient specificity to avoid a charge of unconstitutionality on the ground of vagueness and uncertainty.[409]

Similarly, the Court of Appeals of North Carolina in a 1968 case, State v. Dorsett,[410] upheld an ordinance of the City of Greensboro which provided:

> The use of any automobile, motorcycle, or vehicle so out of repair, so loaded, or in such manner as to create loud or unnecessary grating, grinding, rattling or other noise (is prohibited).[411]

The Court stated flatly that the lack of a decibel standard did not render the ordinance unconstitutional for vagueness or indefiniteness saying, "such exactness is not required."[412] State statutes providing such standards as "excessive or unusual noise" have also been upheld in New York, California , and Texas.[413]

Related questions may arise in situations where local ordinances undertake to preclude the use of certain streets or to prohibit the operation of vehicles in specified zones of a municipality. Case law in this area to date does not appear to have dealt with the noise problem specifically but rather with the regulation of traffic. In the 1970 Delaware case of State v. Crossan,[414] an ordinance of the city of New Castle barred trucks and other commercial vehicles from city streets unless they were making pickups or deliveries within the city. The Superior Court of Delaware (New Castle) held that the ordinance was constitutionally reasonable even though it required a sand and gravel business to use an alternative route around the city which was several miles longer than a direct route through the city. After first determining that the State had no power, authority, or jurisdiction of the streets of any incorporated city or town the court stated:

> It is clear that a municipality has the constitutional power to regulate and, in certain areas, even exclude truck traffic within the city so long as such regulations bear a direct relationship to the public purpose to be served and is not unreasonable or arbitrary.[415]

A different decision might have resulted, the Court indicates, if no alternative route existed or if such alternative route constituted "a dangerous traffic hazard."[416]

The type and extent of control over vehicular traffic which a city can impose often depends on the State constitution or

State legislation which delegates certain authority to a city of town, as for example the validity of an ordinance prohibiting all commercial vehicles from using certain designated streets except for delivery purposes,[417] or the validity of an ordinance which undertakes to establish a one-way lane for the exclusive use of buses and taxi cabs.[418]

The courts have yet to pass upon many of the questions which may be raised in connection with various provisions of new, comprehensive city noise abatement codes such as the proposed New York City Noise Control Code.[419] This Code undertakes to apply a three-dimensional regulatory approach by 1) retaining the common law nuisance ordinances which prohibit "unnecessary noise" so as to preserve the court precedents which have accrued; 2) "setting specific decibel limits for those sound-producing devices for which a feasible abatement technology exists" (air compressors, air conditioners, paving breakers, emergency sirens and refuse compactor trucks); and by 3) introducing the concept of ambient noise standards within particular zones of the city related to land uses planned for such zones. By the new Code, the Environmental Protection Administrator of the City would be empowered to protect residents from the "harmful effects of unnecessary noise." The Administrator would also have authority "to shut down or order abatement of a device which may not itself be beyond the standards set by the Code if that device is part of a cumulatively harmful set of noise sources." Also, the Administrator and the Board of Health may declare certain sections to be "noise sensitive zones" in which public health may require exceptionally stringent noise standards. Within two years of enactment the Administrator would be required to submit to the City Council ambient noise quality zones for the entire city with appropriate noise criteria and standards for each zone. The crucial consideration is that future land use planning in New York City will have to be "environmentally sound with respect to noise."

One of the more significant provisions of the Code is the authority granted the Administrator to place various noise-producing devices on an Operating Certificate List. A certificate will be granted if 1) the device will be operated without causing a violation of other Code provisions, or 2) the device incorporates advances in the art of noise control developed for the kind and level of noise emitted by the particular device. It is obvious that a variety of legal questions may arise with the application of this Code, as for example, potential conflict with the establishment of maximum noise levels for various machinery or devices by the Federal Government. Provisions of this Code, including the Enforcement sections, are discussed in Subsection 3.

Local ordinances undertaking to control aircraft noise which have raised questions of preemption and undue burden on interstate commerce have previously been discussed extensively in subsections 2.3 and 2.4.1 supra and will be noted only briefly here. In Cedarhurst the ordinance which prohibited flights over the city at less than 1000 feet was invalidated on the grounds that it was an unreasonable burden on interstate commerce, invaded an area preempted by the Federal government and conflicted with valid Federal regulations. In Audubon Park, the court held an ordinance prohibiting flights over the city at altitudes under 750 feet to be invalid in that the aircraft could not comply both with the ordinance and FAA regulations and for reasons that it imposed an unreasonable burden on interstate commerce. The Lockheed case involved a curfew ordinance. The court there observed that if such a local ordinance were adopted by a large number of cities, thereby focusing the problem at the national level, it would impose an unlawful burden on interstate commerce. In the Stagg case a curfew ordinance was upheld under the particular circumstances, a critical point being that the airport involved was not used by scheduled interstate air carriers.

D. State Environmental Noise Regulatory Schemes

In prior subsection 2.4.2C, local ordinances relating to noise regulation were considered with respect to authority and various aspects of limitations on municipal authority. This subsection involving State regulation will focus primarily on the implications of existing State constitutional provisions and statutory schemes and prospective State noise abatement codes for local noise regulation.

Most states have "muffler" statutes. In the 1966 New York case of People v. Byron[420] the validity of the State Vehicle and Traffic Law section was challenged. This section provides:

> Mufflers. Prevention of noise. Every motor vehicle, operated or driven upon the highways of the state, shall at all times be equipped with an adequate muffler, in constant operation and properly maintained to prevent any excessive or unusual noise and no muffler or exhaust system shall be equipped with a cutout, bypass or similar device. No person shall modify the exhaust system of a motor vehicle in a manner which will amplify or increase the noise emitted by the motor of such vehicle above that emitted by the muffler originally installed on the vehicle and such original muffler shall comply with all the requirements of this section.[421]

The court found that what is "excessive or unusual noise" has become common knowledge to the reasonable man and that the standard is constitutionally adequate, citing Kovacs v. Cooper.[422] Responding to the defendant's contention that a new section 386 added in 1956 on motor vehicle noise limits established a decibel sound level defining excessive or unusual noise was a "conscious attempt of the Legislature to supply the missing objective standard of the precise quantity of noise prohibited,"[423] the court stated:

> The addition of section 386 was not an attempt to shore up subdivision 31 of section 375. On the contrary, it makes no effort to amend the earlier provision and the two are meant to stand side by side. One now sets a limit beyond which no vehicle noise may go while the other requires each motorist to minimize the noise his particular vehicle makes within that limit.[424]

The court also noted that the States of Texas and California have statutes virtually the same as section 375 and that the courts in those states have upheld their constitutionality.[425]

The implications of above section 386 of the New York State Vehicle and Traffic Law for local vehicular noise control have been construed as follows in A Guide To The New York City Noise Control Code (proposed)[426] with respect to Sound Level Standards:

> Article V. This article complements Article III in setting specific decibel limits or providing for such limits to be set in the future on a series of noise producing devices. It includes subways, air compressors, circulation devices (chiefly air conditioners), refuse compactor trucks, motor vehicle horns and sirens, and paving breakers. The article doesn't mention motor vehicle noise because the state has preempted such legislation and forbids the passage of local laws inconsistent with or duplicating existing state limits. The state limits are high -- 88 dBA at a distance of 50 feet -- and obviously were not intended for city streets when set (pedestrians are frequently closer than 50 feet to motor vehicles operating on city streets), and so the Environmental Protection Administration is attempting abatement of this important noise source through an amendment to the state law which is expected to

> be acted on by the state legislature next year. The amendment calls for limits of 78 dBA on passenger cars at 50 feet and 84 dBA at 25 feet. Higher limits are set for buses and trucks over 10,000 pounds (88 dBA and 94 dBA at 50 and 25 feet, respectively), buses and trucks under 10,000 pounds (80 dBA and 86 dBA) and motorcycles (88 dBA and 94 dBA).[427]

However, section 386 does not explicity state that control over vehicle noise has been preempted by the State thereby divesting local communities of all authority over vehicular noise.

The preemption question in California seems to be similar to that in New York. California has a New Environmental Quality Statute (Division 13 of the Public Resources Code) which explicitly recites "freedom from excessive noise" as an objective to be achieved. More pertinent to the present discussion, however, is the California Vehicle Code which by Section 23130 prescribes "operational" Vehicular Noise Limits for speed limit of 35 mph or less and for speed limit of more than 35 mph. Subsection (c) of Section 23130 provides that: "This section applies to the total noise from a vehicle or combination of vehicles and shall not be construed as limiting or precluding the enforcement of any other provisions of this code relating to motor vehicle exhaust noise." (Emphasis supplied.) Section 27160 of the Vehicle Code provides that "(a) No person shall sell or offer for sale a new motor vehicle which produces a maximum noise exceeding the following noise limit..." (with dates and decibel limits prescribed).

As to the preemption question, a so-called Primer on Public Environmental Law in California[428] dated March 1971, which undertakes to cite relevant State Code Sections, Regulations and Decisions on various aspects of environmental noise control refers only to Sections 23130 and 27160 under Vehicular Noise with the notation: "Under regulations adopted by California Highway Patrol enforced by C.H.P., county sheriffs, and city police." Neither of these two Sections has a positive, explicit provision concerning preemption by the State of vehicular noise control. But as in New York it seems to be generally assumed that the state has preempted the field. For example, in the publication The Ten Point Action Program For the Alleviation of Noise Pollution in Inglewood, California[429] a statement by an officer of the City Noise Abatement Division asserts that control over noise from trucks and buses "is a regulatory area which has been taken away from the cities by the State, at least in California."[430] This position has been recognized by a proposal, not yet acted upon by the State legislature, to reallocate and clarify the State/local control relationship through a new Section 23131 which would prescribe:

> The provisions of Sections 23130 and 27160 are not intended to preempt the field of vehicular noise. No provision of this code shall preclude any city, county, or city and county from enacting ordinances whereby zones are created in which the local jurisdiction may impose more stringent noise limits on vehicles including motorcycles than are provided

> by Section 23130. Such limits may be effective both on an off highway. Such local entity may adopt means for measuring such noise other than those adopted pursuant to Subsection (b) of Section 23130. Provided, no city, county, or city and county may enact any ordinance limiting vehicular noise on the California freeway and expressway system.[431]

The lack of precision in the muffler laws of the various states for purposes of identification and enforcement as well as the indifferent attitude which has been taken by most states toward such laws, together with the movement toward comprehensive State Environmental Quality legislation leaves the State/local division of authority in disarray. For example, Illinois has had a State statute since 1935 requiring all motor vehicles to be equipped with an adequate muffler but no specific penalty is provided for a violation.[432] The City of Chicago has an ordinance on the books which requires all vehicles to be equipped with a good muffler and prescribes a fine up to $200 for violations.[433] However, the new Chicago noise ordinance sets decibel limits for motorcycles and vehicles of all sizes and forbids the modification of any muffler in such a way as to cause the vehicle to emit more noise than when it came from the factory.[434] New State legislation, the Environmental Protection Act, which became effective on July 1, 1970, provides in Title VI; Noise, that the purpose of this Title is to prevent noise which creates a public nuisance and requires that the Pollution Control Board prescribe limitations on noise emissions beyond the boundaries of the property of any person.[435] Clearly, preemption problems may arise if the Pollution Control Board undertakes to prescribe maximum decibel noise levels from various noise sources now regulated by local ordinance. Of course, this will depend upon whether State standards will be made exclusive or whether municipalities will be permitted to establish more stringent requirements. Municipalities will undoubtedly be left with authority to establish "Zones of Quiet" to preclude certain activities within designated zones or to prohibit noisy vehicles from using streets within such zones except during prescribed hours or for prescribed purposes.[436]

In this connection attention is invited to subsection C above which considered several decisions wherein the validity of local ordinances regulating vehicular noise were upheld in states having muffler control statutes. But as noted, some of the new State environmental quality legislation simply declares a policy and establishes an agency or board with authority to develop standards. Since several states with new environmental legislation, including noise abatement provisions, have not yet established standards and set forth the operations and intended effects of such standards, the implications for preemption must be highly speculative. In a new Act relating to noise pollution, Florida has provided that the Department of Air and Water Pollution Control shall "Establish...standards for the abatement of excessive and unnecessary noise and in cooperation with the Department of Transportation establish the maximum decibels of sound permissible from motor vehicles and trucks operating on the highways of Florida."[437] Nothing is said of the preemptive impact of such standards.

Hawaii passed an Act Relating to Excessive Noise which became effective on July 1, 1970. This Act provides that the Department of Health shall "adopt such rules and regulations, including standards of excessive noise relating to the various sources thereof, for different areas of the state, as necessary to prohibit or control excessive noise caused by any person."[438] Section 322 (b) states: "No county shall adopt any ordinance, rule or regulation relating to noise control after the effective date of this Act." It is clear, therfore, that the various states are taking somewhat different approaches to environmental noise regulation insofar as the allocation of authority and responsibility between the State and local level is concerned. Consequently, the preemption question will, of necessity, differ among the several states.

The evolving State environmental quality control legislation relating to noise not only has preemption implications for municipalities but could raise questions concerning an unreasonable burden on interstate commerce. Suggestions along this line are contained in a newssheet dated July 28, 1971, from an obviously interested party, the Heavy Duty Truck Manufacturers Association.[439] After listing the enacted noise (dBA) laws on heavy duty trucks, the paper sets forth bills which "are attempting to impose either unattainable goals (compared to present state-of-the-art) or different measuring distances, instruments, etc."

The principal segment of the HDTMA newssheet is a paper by Richard G. Kolb on "Vehicle Noise and State Regulations" which is a strong statement to the effect that "the States not only adopt one noise standard but also one uniform law for all safety related items." Kolb applauds the California approach of recognizing "total vehicle noise, regardless of where it comes from" (tires, engine, transmission, drive train, exhaust, cooling fan, combustion noise, or general body and loading mechanisms).[440] He contends that State legislation should specify acceptable noise levels, rather than dictate muffler design,[441] which amounts to a performance rather than a specification criterion. Kolb strongly urges that a State statute be worded "so that no city or county can impose more restrictive limits than the state."[442] He concludes:

> Finally, it should be evident that there is an increasing need for uniform regulations on vehicle noise across the nation. Operators today require the use of the same vehicle in a number of States, counties and cities. They should not be faced with an increasing problem by having wide variations in noise limits, test procedures, equipment and interpretation of the regulations.[443]

It is surely conceivable, as certain proposed legislation indicates, that one or more states might establish a substantially more stringent vehicle noise standard than the great majority of states. Resulting interruptions in operations and delays caused motor freight carriers entering or passing through such states (need to shift trucks or cargo) could lead to a challenge based on such stringent noise levels constituting an undue burden on interstate commerce. In Bibb v. Navajo Freight Lines, Inc.[444] the Supreme Court found an Illinois contour mudguard requirement to be in conflict with the Commerce Clause even though such "local safety measures" are normally not found to place an unconstitutional burden on interstate commerce.[445] However, here the facts showed that the straight mudflap was legal "in at least 45 states" and illegal only in Illinois, that the contour mudguard possessed no appreciable safety advantage over the straight mudflap, and that "interline" operations (interchanging of trailors between an originating carrier and another carrier) would be hampered.[446] Pointing out that Arkansas required straight mudflaps, the Court noted that use of the same motor vehicle equipment in both states was rendered impossible.[447] Acknowledging that "We deal not with absolutes but with questions of degree,"[448] the Court elaborated:

> The conflict between the Arkansas regulation and the Illinois regulation also suggests that this regulation of mudguards is not one of those matters "admitting of diversity of treatment, according to the

> special requirements of local conditions"***A State which insists on a design out of line with the requirements of almost all the other States may sometimes place a great burden of delay and inconvenience on those interstate motor carriers entering or crossing its territory. Such a new safety device - out of line with requirements of the other States - may be so compelling that the innovating State need not be the one to give way. But the present showing - balanced against the clear burden on commerce - is far too inconclusive to make this mudguard meet that test.[449]

Would a highly industrialized, commercialized and traffic congested state with a higher ambient noise level than surrounding states be sufficiently justified in establishing more stringent vehicular noise standards than the adjacent states so as to offset the resulting burden on interstate commerce? Does "freedom from excessive noise" and hence from the physical and psychological effects of such noise enjoy - or deserve - as high a rating on the social value scale as physical safety with which the Court was primarily concerned in the Bibb case? Unless the states enact approximately equivalent vehicular noise standards (as to decibel levels and effective dates) litigation involving the Commerce Clause is likely to arise. This statement assumes both effective enforcement by most or all of the states of vehicular noise regulations and also that State noise standards are not preempted by Federal legislation.

Another case which indicates how a court might approach State or local regulatory schemes with respect to noise when challenged as an undue burden on interstate commerce is People of State of California v. Atchison, Topeka & Santa Fe Railway Co.[450] wherein the defendant was convicted in the trial court for violation of section 24242 of the Health and Safety Code which provides:

> A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:
>
> (a) As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
>
> (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this section.[451]

This section was violated each time a diesel engine started moving after coming to a stop, emitting so-called "lag-time" black smoke. Defense witnesses offered undisputed testimony that there was no known way to prevent such emissions. The defense also asserted that "it would be impossible to operate the railroad in Los Angeles County without producing this 'lag-time smoke' each time an engine started up from a standstill."[452] The Court of Appeal, Second District, distinguished the situation here from the Huron case, (supra 2.3.1) saying: "The question was not presented (in Huron) as to whether the ordinance could be applied if appellant had made a showing that no methods were available by which they could avoid violation. It is because of this that we do not feel the Huron case is controlling."[453] The decision concludes:

> We conclude, therefore, that the statute in question as applied to appellant (defendant) herein under the circumstances shown by this record constitutes an unreasonable burden upon appellant's operations and as such substantially impedes the free flow of interstate commerce which is prohibited by the Constitution of the United States.[454]

This lower court California case as well as the Bibb and Huron Supreme Court cases would seem to reflect the types of factors which will be taken into account by courts in deciding whether to find an unreasonable burden on interstate commerce resulting from the imposition of environmental noise standards. But more explicitly, in addition to the test of whether a given ordinance or State statute undertakes to regulate matters "admitting of diversity of treatment, according to the special requirements of local conditions," are the amplifying or additional factors of delay or inconvenience to interstate carriers, safety, technological feasibility, economic reasonableness (including the availability, cost and effectiveness of alternative protective measures), and "the nature of the menace against which it (the ordinance) will protect..." Legislation, and implementing standards setting administrative procedure, which does not take these various factors into account may well be vulnerable to either Due Process or Commerce Clause challenge.

E. Federal Environmental Noise Regulatory Schemes

With the exception of aircraft noise abatement at the source and the limited reach of the Walsh-Healey requirements, the Federal government has, so far, taken only modest steps toward the alleviation of environmental noise.[455] The new Occupational Safety and Health Act of 1970 authorizes the Secretary of Labor to "set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce...." The eventual implementation of this new authority could be pervasive in the occupational noise area. Also, the 1970 amendment to the Federal-Aid Highway Act (Public Law 91-605) directs that the Secretary of DOT "develop and promulgate standards for highway noise levels compatible with different land uses...." The effects of this latter action are likely to be long range and peripheral.

The most comprehensive assertion of authority at the Federal level over the abatement and control of environmental noise is contained in the Noise Pollution and Abatement Act of 1970, which, oddly, was enacted as Title IV - Noise Pollution to the Clean Air Amendments of 1970 Act:

> Title IV -- Noise Pollution
>
> Sec. 401. This title may be cited as the "Noise Pollution and Abatement Act of 1970."
> Sec. 402.(a) The Administrator shall establish within the Environmental Protection Agency an Office of Noise Abatement and Control, and shall carry out through such Office a full and complete investigation and study of noise and its effect on the public health

> and welfare in order to (1) identify and classify causes and sources of noise, and (2) determine --
>
> (A) effects at various levels;
> (B) projected growth of noise levels in urban areas through the year 2000;
> (C) the psychological and physiological effect on humans;
> (D) effects of sporadic extreme noise (such as jet noise near airports) as compared with constant noise;
> (E) effect on wildlife and property (including values);
> (F) effect of sonic booms on property (including values);
> (G) such other matters as may be of interest in the public welfare.
>
> (b) In conducting such investigation, the Administrator shall hold public hearings, conduct research, experiments, demonstrations, and studies. The Administrator shall report the results of such investigation and study, together with his recommendations for legislation or other action, to the President and the Congress not later than one year after the date of enactment of this title.
>
> (c) In any case where any Federal department or agency is carrying out or sponsoring any activity resulting in noise which the Administrator determines amounts to a public nuisance or is otherwise objectionable, such department or agency shall consult with the Administrator to determine possible means of abating such noise.

The requirement for a most inclusive report to the Congress "together with...recommendations for legislation or other action" clearly implies that the Congress does have the formal authority to enact a most comprehensive legislative scheme for environmental noise control. The actual distribution of authority in this area for the various functions involved in characterizing any program for environmental noise abatement and control could follow several patterns.

For example, the standards setting function (as to minimum requirements) might be established at the national level pursuant to a stated national legislative policy on environmental noise while the techniques of implementation could include Federal support for the administrative application of standards to particular noise sources by State and local authorities. Suggestions as to plausible apportionments of powers and functions are made by the Report on The Noise Around Us:

> Considering proposed legislation designed to regulate the production of noise, it would seem that there are areas in which the Federal government, as well as the States and municipalities, could legislate without raising serious questions of conflict or taking. The Administrator of the Environmental Protection Agency, for example, might be authorized to investigate and set standards to provide for a maximum amount of noise that might be produced by machinery transported in interstate commerce or operating in interstate commerce. This could be accomplished on a legislative finding that an excess of noise is detrimental to the general health and welfare. State legislation could provide for a maximum noise limit for motor vehicles, appliances, and other machinery operated within the State. In addition, local zoning could establish maximum noise limits to be permitted in any particular zone.
>
> It would seem that legislation on the national, State and local levels could thus be accomplished toward the end of controlling noise without serious problems of a constitutional nature arising.[456]

As noted, several states have already given serious consideration to the environmental noise problem and have gone to considerable effort and expense to develop appropriate regulatory schemes. It would appear advisable, therefore, that further legislation at the Federal level be carefully designed to 1) control noise sources and effects wherein a paramount national interest is at stake or to 2) supplement and support noise abatement schemes at the State and local levels. This is not an easy objective to implement, however, as the occupational noise legislation illustrates. The Walsh-Healey Public Contracts Act, 42 U.S.C. 35(e) states that "Compliance with the safety, sanitary, and factory inspection laws of the State in which the work or part thereof is to be performed shall be prima-facie evidence of compliance with this subsection." In 41 CFR 50-204.1(e) it is stated:

> (e) Compliance with the standards expressed in this Part 50-204 is not intended, and shall not be deemed to relieve anyone from any other obligation he may have to protect the health and safety of his employees, arising from sources other than the Walsh-Healey Public Contracts Act, such as State, local law or collective bargaining agreement.

The new Occupational Safety and Health Act, 29 U.S.C. 651, et seq., which became effective on August 27, 1971, sets forth a somewhat more complicated directive for the Applicability of Standards in 29 CFR 1910.5(a)(b)(c)(d) and (e).

It is manifest that the major thrust of the Federal government into the environmental quality control field has placed certain strains on Federal v. State/local relationships.[457] State/local officials distinctly sense that "control zones" formerly left to the "police power" are gradually being eroded by the recent Federal legislation directed to environmentalal pollution and by the aggressive enforcement initiatives of the Environmental Protection Agency. In addition to the

Federal v. State/local jurisdictional rift, however, it is apparent that State/local officials are finding certain Federal criteria and standards beyond their capability to interpret, administer, and enforce.[458] Nevertheless, it must be recognized that a systematic, aggressive Federal policy with implementing legislation for the effective abatement of environmental noise can lend tremendous leverage to State and local abatement efforts.

In view of the Federal v. State/local relationship, the question of Federal preemption of noise abatement regulatory measures becomes a matter of critical significance. Consequently, a more careful assessment of the implications of proposed noise control legislation needs to be made than has customarily been the case in the past.

In their exhaustive review of the "Preemption Question" Abraham and Loder carefully delineate the attitudes of the "preemptionists" versus the "non-preemptionists."[459] They find varying predispositions among Supreme Court Justices as to "the merits of maintaining state power after Congress enters a field."[460] They also observe:

> Second, justices disagree on what specifically constitutes a preemptive worded federal statute, pervasive or modest scheme, arrangement for federal agencies to cede jurisdiction to state agencies should they so desire, and agency action or inaction. Third, justices can't agree on what specifically constitutes preemptive dominant federal interest, burden on interstate commerce, uniformity, or implications in legislative history.[461]

Certain general tendencies are noted, however, such as:

> The rationale for federal supersedure of most state statutes concerning the liability of railroads consists of the following: need for uniformity in regulating the same subject matter, avoidance of conflict, and Congressional intent to occupy the whole field as based on an examination of legislative history.[462]
>
> As in the motor vehicle and water transportation fields state health and safety regulations applying to the railroads usually stand despite claims of federal preemption.[463]

But as a general proposition they also assert that "The uniqueness of preemption cases makes it impossible to decide all of them on a strict precedent basis."[464]

One of the authors' most telling blows is aimed at the Federal legislative process:

> One must sympathize with the Court as it tries to resolve preemption questions. It is hard to find legislative intent because Congress is very vague and sometimes it fails to really consider the preemption question or the impact of its legislation upon federal-state relations.[465]

This conclusion, of course, is based upon a full review of the preemption cases through 1965. Obviously, Congressional intent in some areas is more definite than in others. There is no question of the Congressional intent to preempt the field of conventional broadcast regulation.[466] In this context a national system of licensing was essential to avoid electronic interference between stations and to assure the "most widespread and effective service possible."[467] Broadcasting, however, involves a relatively "closed system" with limited frequencies/channels whose operations can be effectively monitored. The situation has become less well structured with the expansion of CATV however.

A somewhat more complicated situation is presented with respect to the "regulation" of nuclear energy since the Atomic Energy Commission is not only charged with the licensing and regulation of "dangerous activities" such as nuclear reactors but with the control of radiation hazards by regulating byproduct, source, and special nuclear materials. Exclusiveness of AEC control over radiation emissions from nuclear plants is, however, currently being disputed. In Northern States Power Co. v. State[468] the plaintiff power company sought declaratory relief to determine if the AEC's authority to regulate radioactive releases by nuclear power plants is exclusive or if Minnesota could impose radiation emission standards which would permit only a small fraction of the amount of escaping radiation allowed by AEC regulations. Drawing primarily upon a 1959 amendment to the Atomic Energy Act of 1954 and the Report of the Joint Congressional Committee on Atomic Energy which accompanied the 1959 amendment bill and noting that Congress was aware of the efforts of Minnesota to regulate radioactive wastes, the Federal District Court opinion stated:

> The Congress obviously acted to clarify the potential conflict by ceding certain authority to the State through turnover agreements, but specifically retained federal (AEC) authority over "construction and operation of any production or utilization facility,"42 U.S.C. S 2021(c). It was expressly stated in the accompanying

> report that licensing and regulation of nuclear reactors was to remain the exclusive responsibility of the AEC. S. Rep. No. 870, supra.
>
> This, to me, is a "clear and manifest" assertion by the Congress of the exercise of its constitutionally granted authority to preempt the field of regulation of radioactive discharges from nuclear power plants.[469]

The Court noted the following factors as showing strong preemptive intent: the fact that Congress had directed, not merely authorized, the AEC to effect a comprehensive licensing program;[470] the pervasiveness of federal supervision over the entire field of atomic energy;[471] and the Congressional purpose to achieve uniformity in the regulation of nuclear activities.[472] However, this decision is now on appeal,[473] the position of the State being that it has the right pursuant to the Tenth Amendment to protect the health of its citizens and to regulate and prevent pollution within its borders.[474] In commenting on this case, Attorney Lee Loevinger makes the interesting observation:

> The basic theory of our federal government system is that the states shall be sovereign, except with respect to necessarily national matters such as foreign affairs, and that the states may serve as social laboratories within which different approaches to social problems may be tried. In view of the great degree of uncertainty regarding the effect of radioactive environmental pollution and the very long time periods necessarily involved in reaching any trustworthy conclusions, it would seem that this is a field in which experimentation by independent state action might be most desirable...(but) It is surely the case that many states will not set their own radiological standards, either because they are satisfied with those of the AEC or because they lack

> the interest or expertise to do so. The federal government, having developed and encouraged the use of nuclear power, should set minimum standards for protection of the public. If a state,...sets standards more rigorous than those of the AEC, and if these are impracticable and uneconomic it would seem that the inability or refusal of industry to establish nuclear power plants in that state would bring about some accommodation.[475]

The Minnesota case and the foregoing quotation help to sharpen certain questions which should be asked - and examined - concerning prospective Federal noise regulation. While radiation might be emitted from various types of nuclear devices, products or activities, the principal threat seems to be from nuclear power plants, which, to this date, are relatively small in number, separately identifiable, and stationary. Hence, the source of the dangerous by-product (radiation emissions) constitutes a readily identifiable and controllable system. Further, the principal thrust of the national atomic energy program is to promote and utilize the many benefits of this potentially enormous resource. In short, radiation is only one of several side-effects of a well organized social program.

The social problem context of environmental noise is vastly different. Here, the principal objective is to abate unwanted sound - not to develop a resource potential of which noise is only one of various adverse side-effects. Further, environmental noise comes from a vast variety of sources with little in common. Many of the most obnoxious noises come from moving sources or from multiple and diverse activities acting in concert. Hence, various techniques (abatement at the source, reduction of effects, or remedies for damage) have been devised to attempt to cope with this problem. The noise abatement task is further complicated by the necessity to determine at what level of government these various techniques can best be prescribed and implemented. In the context of the overall environmental noise problem, aircraft noise alone would appear to be comparable to the situation posed by the Minnesota radiation emission case.

Many questions need to be explored as the environmental noise regulatory structure assumes increasing institutionalization. In order to urge the Congress to give appropriate consideration to the implications of new Federal noise legislation on State and local regulatory efforts, significant social needs and demands to be satisfied at the Federal, State, local and private levels should be identified and evaluated. Certain questions might be posed for the purpose of stimulating further inquiry:

a) In order to assure some diminution in ambient noise throughout the nation, should maximum noise emission standards be established at the Federal level for the more obvious noise sources?

Assuming the advisability of this action which can be based on Congressional control of products moving in interstate commerce, would such national standards effectively proscribe more stringent State standards apart from explicit statutory preemption?

Or is such explicit statutory preemption essential at the Federal level in order to assure that States and municipalities do not unduly burden the flow of interstate commerce by the imposition of diverse noise standards?

Yet, will the adoption of standards of "minimum adequacy or tolerance" at the Federal level necessarily preclude the achievement of optimum (and more stringent) noise standards in State and local situations?

b) Should the Federal government set noise standards for "articulated systems" or only for component parts of such systems? For example, if the Federal government established standards for automobile engines, mufflers/exhausts, transmissions, and tires, how might the accumulative effect of such components when combined into a complete vehicle compare with the "total vehicle noise" standards set by California?

If the cumulative noise of approved components by Federal standards exceeded the maximum "total vehicle noise" provided by the California statute, would the latter State action be preempted?

c) Should Federal noise standards be limited to those products and equipment which tend to be standardized, produced for a mass market, and hence are regularly shipped or utilized in interstate commerce, leaving to State and local control those industrial installations (articulated technologies), including transportation systems which are State and local in character, being designed for the particular needs and demands of the State or local areas served?

Should the subway system for the San Francisco Bay area or for the Washington, D. C., metropolitan area have total system noise levels set by the Federal government or by the local jurisdictions directly involved, especially if such local jurisdictions insist on lower "systems noise levels" than would result from the cumulative noise generated by subway systems components approved under Federal noise standards?

Or should local jurisdictions depend upon the competitive market to develop systems proposals which would incorporate the available technology at lowest practicable cost to accommodate the noise level demands of particular localities?

d) Should Federal regulation seek to conserve as large a scope for individual, private decision as practicable by means of information (labeling) rather than by prescribing standards for those devices, products, and equipment which affect only the consumer (office or household) in a direct, immediate, and private fashion?

Even with respect to aircraft noise (which affects many segments of the community) we recognize a private "proprietary" control function. The California aircraft noise abatement scheme encourages various alternative means of reducing the effects of aircraft noise by the airport operator.

e) Will one of the major factors supporting noise regulation at the Federal level be the ability (if exercised in terms of statutory prescriptions and research and testing resources) to enact noise standards which are compatible with the most advanced state of technological feasibility, with economic considerations, and with adequate safety precautions?

f) Even if Federal noise standards are established, would they preclude a State from regulating the volume of traffic on the Interstate Highway System so as to assure that the ambient noise level does not exceed a given State standard?

Or would a State be obliged to forego traffic control and abate highway noise as best it can through a gradual process of land acquisition, highway noise easements, and rezoning procedures?

g) What effect might Federal noise standards have on municipal control over operation, use, and movement of noise producing sources?

Of course, some states such as Hawaii may undertake to totally preempt the noise control field within its jurisdiction though such action may be ill-advised for most states.

Even if Federal standards for noise emitted from various mechanisms, devices, products, and equipment are adopted, would it not seem unlikely that such standards would preempt or otherwise seriously interfere with most of the techniques customarily applied at the local level?

Surely, cities could continue to establish "zones of silence" for the purpose of imposing ambient noise standards on various types of community activities or sections of the city. Federal standards on construction equipment might not permit any deviation by the State or municipality but "curfew" and "budget" or "decibel allocation" ordinances could continue to provide more stringent protection than the maximum permitted by Federal standards with such equipment being operated at full capacity continuously. There should be no objection to the designation of certain streets for through (and interstate) traffic so as to maintain some control over noise emissions. Constitutionally passable "permit" requirements could still be imposed for the operation of equipment meeting Federal noise standards.

But what provision might be made at the Federal level (and what will the implications be at the local level) for emergency noise requirements (sirens on police cars and fire trucks) or for special activities such as sporting events, automobile race tracks, political rallies, etc., where "excessive" noise may be quite appropriate on an infrequent, and permit basis?

h) Special kinds of questions could arise with the initiation of Federal standards.

For example, could a State, in order to reduce highway noise, limit motorcycle groups to five or six even though each motorcycle owned by members of a club of 20 (who customarily ride together) meets the Federal standard?

Or might a municipality require that certain vehicles, devices, or equipment be operated in designated zones at noise levels which are far more stringent than required under Federal standards in order to maintain a given ambient noise level?

i) In view of the foregoing questions and comments, what validity, if any, is there to the proposition that, in general, the Federal government might most usefully give its attention to the abatement of noise at the source, leaving to the states and municipalities the task of regulating the effects of noise by controlling the use, operation, and movement of noise sources?

But would Federal control directed to abatement at the source apply primarily to discrete noise sources (and those customarily transported in or moving in interstate commerce) rather than to noise environments?

Noise environments such as construction sites, airports, etc., may differ drastically from state to state and from locality to locality; so, should not states and localities retain control over total noise emissions from these activities?

However, the Federal government does exercise some control over noise environments (occupational), and certain states have undertaken to impose maximum noise emission levels on various discrete sources (vehicles, for example).

Hence, is it not useful to again recognize the diverse and unrelated dimensions of the total environmental noise context and consider proposed regulatory configurations in terms of appropriateness for particular noise sources and identifiable noise environments?

Simply posing the above questions, without undertaking an analysis of the full implications of alternative measures noted, leads to certain tentative observations. An active role by the Federal government in the environmental noise regulatory area (in addition to aircraft noise) should provide an effective catalyst for noise abatement efforts by all affected participants in the public and private sectors. It would seem advisable, however, that the Federal government enact preemptive noise standards only with respect to mechanisms, devices, products, and equipment which will clearly contribute to an appreciable lowering through time of ambient noise throughout the nation. New legislation should be as explicit as practicable as to what noise abatement measures, including standards, are intended to be preemptive of State and local control. It would seem advisable that both the Federal government and the State governments restrain their preemptive control and encourage noise abatement efforts at the lower governmental levels so as to optimize noise abatement for particular conditions. The more unique the situation, the less the justification for preemption at governmental levels above the public entity immediately concerned.[476] The establishment of more stringent noise standards at all governmental levels should act as an incentive to the private sector (manufacturing, industrial and transportation activities) to take noise into account as a factor in the research, design, development, and operation of noise-producing activities. The general public should be sensitized through informational programs (labeling and dissemination of noise source and effect data) to the problem. Finally, the complexity of the total environmental noise problem context, the comparatively rudimentary stage of development of an information base (grounded in research, development, program design, prescription, implementation, and useful experience to be gained therefrom), and the fragmented, unsystematic regulatory structure now in existence, would seem to dictate a need for a large measure of discretionary, though carefully controlled, experimentation by all relevant entities in the public and private sector in noise abatement techniques.

The gist of the above observations is that while Federal level intervention in the environmental noise abatement regulatory effort is probably indispensable for the implementation of an adequate regulatory effort, Federal preemptive standards should be established only for those situations which can clearly be justified. Admittedly, what can be justified is no easy decision by virtue of the complexity of the environmental noise abatement problem as noted above. However, Federal preemption is probably inadvisable unless it offers a clear net benefit over cost outcome for environmental noise abatement. The following Tables which describe the environmental noise regulatory context are illustrative of the factors which should be taken into account and the questions which should be asked and answered in deciding the preemptive question.

I

NOISE CONTROL LOCI

Noise Sources

Aircraft
Vehicles: Autos, Trucks, etc.
Internal Combustion Engines
Construction Equipment
Electrical Appliances and Instruments
Industrial Activities
    Mining
    Quarrying
    Processing
    Manufacturing
Home Appliances: Internal
    External
Community Services
Commercial-Advertising and Amusements
Recreational Vehicles or Facilities

Noise Environments

Building Construction
Highway Construction
Airports
Highway Traffic
Urban Traffic
Industrial Parks
Occupational
Recreational
Home - Domestic
Public Events

Questions to Consider in Deciding Upon New Environmental Noise Regulatory Proposals:

- What are the more critical noise sources not yet controlled?
- What noise can best be abated at the source?
- What noise can best be regulated through reduction of noise effects?
- What noise is so infrequent or marginal in social costs as to be best left to individual remedial action?

QUESTIONS...Cont'd.

- What noise is so infrequent, unique, or marginal in terms of social costs that it can best be left to judicial or administrative techniques of compensation for special harm done?
- How can functions for certain noise control contexts be best apportioned among governmental levels or among entities at the same level?
- How can regulatory configurations be designed for controlling specified noise contexts so as to minimize conflict in function, including standards setting, administration, and enforcement, i.e., minimization of "preemption situations"?
- Should municipalities be permitted to set noise standards at more stringent levels than required by either Federal or State standards? If so, with respect to what discrete noise sources or noise environments? What are the considerations? What are the precedents in other environmental quality control areas?
- What are the more critical contexts of noise regulation in terms of the probability of placing an unreasonable burden on interstate commerce?

II

ELEMENTS OF ANY PROPOSED ENVIRONMENTAL NOISE REGULATORY CONFIGURATION (ENRC)

Mode of Noise Control

Abate at Source
Regulate Effects of Noise
Compensate for Effects of Noise

Operative Level of Government

Federal
Regional Authority
State
Local
Federal- Regional-State-Local

Formal Authority

Commerce Clause
Tax and Spend Power
Art. I, §10 of U.S. Constitution
(Interstate Compacts)
Police Power: 9th and 10th Amendments of U.S. Constitution

Functions Proposed

R&D on Effects of Noise
R&D on Noise Abatement
R&D on Noise Criteria
Standards Setting
Administration and Enforcement
Determination of Damages, Compensation, or Penalties
Public Information
Continuing Monitoring and Evaluation

Standards Proposed

- National Ambient Noise Levels
- State or Local Ambient Noise Levels
- Verbal-Subjective: "Unusual or Unnecessary Noise"
- Decibel Levels:
  - Devices-Products-Equipment
  - Use, Operation or Movement of Devices-Products-Equipment
  - Community Zoning
  - Defined Noise Environments
- Qualifications
  - Technologically Feasible
  - Economically Reasonable

Enforcement Alternatives

- Federal-State-Local
- Individual Actions
  - Common Law
  - Pursuant to Statute
- Class Actions
- Proprietary Control

Implementation Techniques

- Federal Statutory Authority
- Interstate Authorities
- State Statutory Authority
- Local Ordinances - Types
  - Zonal
  - Curfew
  - License and Permit
  - Certification
  - Decibel Budget
  - Assessory
  - Anti-degradation
  - Step-down
  - Density
  - Conservation
- Public Information
- Labelling
- R&D to Eliminate Noise at Source
- R&D to Reduce Noise Effects

Remedies and Penalties

Damages: Private Actions
Injunction: Private Suits
Inverse Condemnation
Cease and Desist
Disqualification for Government Contracts, etc.
Non-Certification
Certification Revocation, Suspension or Modification
Cessation of Operations
Modification of Operations
Confiscation
Fines
Imprisonment

III

INDICES FOR ASSESSING PREEMPTIVE EFFECTS OF PROPOSED ENRC

(Federal Legislative Preemption of State and Local Noise Abatement Codes, Ordinances, etc.)

(State Legislative Preemption of Local Noise Abatement Ordinances)

Questions to Facilitate Determination of the Preemptive Effect of Higher Level (HL) ENRC Include:

- Precisely what has the HL Regulatory Configuration undertaken to abate or control?
  - What Noise Source or Noise Environment?
  - Abate at Source, Regulate Effects, or Compensate for Noise Damage Effects?
  - Support R&D? Administer? or Enforce? or Provide Resources for Administration and Enforcement at Subordinate Governmental Levels?
  - Set Standards for:
    - Discrete Noise Sources
    - Articulated Technologies with Multiple Noise-Producing Components
    - Recurring Sound Producing Activities with Varying Assemblies of Discrete and Articulated Noise Producing Components
    - Noise Environments?
  - Set Exclusive Standards or Maximum Noise Decibel Limits Allowing Lower Jurisdictions to Establish More Stringent Standards?

QUESTIONS...Cont'd.

- Does the ENRC undertake to control noise sources or noise environments involved in or substantially impinging on activities reflecting a strong national interest as demonstrated from practice and experience or by previous Federal legislation in the area?
- Does the ENRC undertake to control noise sources or noise environments requiring uniformity of regulation? Why?
- Does the ENRC undertake to control noise sources or noise environments for which State and local jurisidictions have never taken initiative or for which they may lack authority, or which require resources or expertise which are not generally available at the State and local levels?

IV

ANTICIPATED SOCIAL IMPACTS OF PROPOSED ENVIRONMENTAL NOISE REGULATORY CONFIGURATION (ENRC) RESULTING FROM APPRAISED NATURE AND SCOPE OF PREEMPTION

The prime question here is whether the imposition of preemptive legislation will result in a net social benefit not only with respect to the ENRC proposed, but whether the proposed ENRC will result in a higher social benefit/social cost ratio than alternative regulatory configurations.

The Effects identified as flowing from the imposition of the proposed ENRC must be translated into Social Impacts in terms of the

Probability
Magnitude
Duration of such Effects
  (whether Planned or
  Derivative
Degree of Social
  Desirability (or
  Undesirability)

and with respect to the impact on

Affected Participants
  (number and character of
  various categories:
    Manufacturers
    Suppliers
    Operators
    Users
    Others Affected)
and

Value-Institutional Processes

Illustrative Questions to Assist Social Impact Evaluation Include:

- Will the ENRC satisfy reasonable community expectations re noise abatement efforts? With respect to existing sources and environments only or to new discrete noise sources and noise environments?
- Will the ENRC encourage or discourage action by participants and entities involved in noise abatement or otherwise affected by noise and noise abatement?
- Can the ENRC be effectively administered and enforced?
- Will the ENRC deprive lower level jurisdictions of the authority and resources to deal with special or unique noise contexts?
- Does the ENRC avoid unnecessary control over the use, operation, and movement of noise-producing machinery, devices, and equipment at the State and local level in accomplishing the desired noise abatement objectives?
- If the ENRC is designed to promote a national interest or to take abatement action at the Federal level for lack of authority, resources or skill at the State and local level, is this being accomplished at minimum (or reasonable) cost and without appreciable inconvenience to special State and local problem solving efforts?
- Will the ENRC provide for an equitable apportionment of the social benefits and the social costs among those affected? (Manufacturers, Suppliers, Operators, Users, Administrators, etc.)
- Can the ENRC be implemented and administered at "reasonable cost"? (No waste of human and material resources required for other social programs)
- Is the ENRC "technologically practicable" for the scheduled date of imposition (set single date or progressively stricter standards for future dates)?
- Will the ENRC encourage technological innovation (provide an incentive)?
- Is the requisite knowledge and skill available (or to be made available) for effective implementation of the ENRC?

- Will the ENRC encourage knowledge and skill development in the management of environmental quality programs, including noise abatement?
- Will the ENRC reinforce or deprive other social values such as:
    - Non-Discriminatory Practices
    - Free Expression
    - Safety
    - Mobility
    - Access to Goods & Services
    - Physical Well-Being
    - Mental Well-Being
    - Pleasing Natural Environment
    - Pleasing Social Environment
- Will the ENRC provide for uniformity in administration and in uniformity of treatment among the affected or supporting industrial and commercial activities?
- Will the ENRC encourage responsible official and private behavior?

FOOTNOTES

[1] This is a common definition of "noise" as used by most contemporary commentators. See Greenwald, Alvin G., "Law of Noise Pollution," BNA Environment Reporter, Monograph No. 2, Vol. 1, No. 1, at 1, May 1, 1970. The Committee on Environmental Quality of the Federal Council for Science and Technology titled its report of September, 1968, on environmental noise as Noise - Sound Without Value.

[2] See Spater, George A., "Noise and the Law," 63 Mich. L. Rev. 1373 (1965) reprinted in Hildebrand, James L., Noise Pollution and the Law 22 (1970). Subsequent citations to Spater will be to page numbers in Hildebrand.

[3] Spater, supra note 2, at 23.

But see Noise Litigation Study (April, 1965), published by the Oregon State Highway Commission, which introduces the section on Railroad Noise by stating:

> Much of the precedent existing today with regard to noise is a result of the early litigation in the railroad field. While precedent as to noise nuisance existed at common law, it was not very valuable for a number of reasons. First, the railroads posed a new problem in that no operations of any kind had previously existed on such a large and peculiar scale. 18 Am. Jur., Eminent Domain § 141.

Id. at 24.

[4] See Greenwald, supra note 1, at 1.

See also Kramon, James M., "Noise Control: Traditional Remedies and a Proposal for Federal Action," from Vol. 7 of the Harv. J. Legis. (May 1970) and reprinted in Hildebrand, Noise Pollution and the Law 78 (1970). Subsequent citations to Kramon will be to page numbers in Hildebrand.

See also Hildebrand, James L., "Noise Pollution: An Introduction to the Problem and an Outline for Future Legal Research," 70 Colum. L. Rev. 652, 683 (1970).

[5] Greenwald, supra note 1, at 5-12.

[6] See 4 Restatement of Torts, §822, comment on Clause (d)(1939) and §826.

[7] Report of the Panel on Noise Abatement to the Commerce Technical Advisory Board of the U.S. Department of Commerce, The Noise Around Us, at 138 (Comm. 71-00147, Sept. 1970).

[8] *Id.* at 138.

Professor Milton Katz addresses this theme in his paper presented at one of the Technology Assessment Seminars of The George Washington University Program of Policy Studies in Science and Technology, entitled The Role of the Legal System in Society's Implementation of Technology Assessment, at 15, May 6, 1971, as follows:

> The decisions of courts are reached and stated in the familiar terms of the respective tort doctrines, but when they are reviewed from the angle of vision of contemporary criteria of technology assessment and environmental protection, remarkable elements of similarity can be discerned between the two modes of thought. In a well-known nuisance case often used in law school casebooks, for example, the court said:
>
> > The law of nuisance plys between two antithetical extremes: The principle that every person is entitled to use his property for any purpose that he sees fit, and the opposing principle that everyone is bound to use his property in such a manner as not to injure the property or rights of his neighbor... In our business of judging in this case, while sitting as a court of equity, we must not only weigh the conflict of interests between the (defendant and the plaintiffs), but we must further recognize the public policy of the generation in which we live. (Antonik v. Chamberlain, 81 Ohio App. 465, 475-476, 78 N.E. 2d 752, 759-60 [Summit County Ct. App. 1947]).

[9] Spater, *supra* note 2, at 25.

[10] Ibid.

See Lloyd, William H., "Noise as a Nuisance," 82 U. Pa. L. Rev. 567, 569 (1934). This article deals with noise from such sources as music, bells, barking dogs, etc.

[11] See Kramon, supra note 4, at 83, citing Prosser, Handbook of the Law of Torts 559-601 (3rd Ed. 1964).

Kramon further suggests that the doctrine of "strict liability" has not been applied in the noise cases although it presents possibilities. Kramon, supra note 4, at 85.

See discussion by Katz, supra note 8, at 17, with respect to a California case involving strict liability which was brought against a manufacturer of a defective lathe by the injured purchaser. The court explained:

> (T)he liability is not one governed by the law of contract warranties but by the law of strict liability in tort...
>
> The purpose of such liability is to insure that the costs of injuries resulting from defective products are borne by the manufacturers that put such products on the market rather than by the injured persons who are powerless to protect themselves...
>
> [Greenman v. Yuba Power Products, Inc., 59 Cal. 2d 57, 63-64, 377 P.2d 897, 901 (1963).]

[12] See Kramon, supra note 4, at 83, citing Smith v. Western Wayne County Conservation Ass'n., 158 N.W. 2d 463, 470 (Mich. 1968) and Township of Bedminster v. Vargo Dragway, Inc., 253 A. 2d, at 659, 661 (Pa. 1969).

[13] See Kramon, supra note 4, at 84, and Spater, supra note 2, at 26.

Kramon in footnote 27 undertakes to make a distinction between two notions which he asserts are frequently confused: 1) "One is that a court of equity must balance the social utility of a defendant's conduct against the harm it imposed upon others in determining whether to grant an injunction. An activity of vital interest to the community will not be enjoined although it creates what would ordinarily constitute a nuisance" and 2) "The other notion is that a recovery for nuisance requires the plaintiff to show an injury peculiar to himself and not merely one which he suffers in common with the community at large."

[14] See Kramon, supra note 4, at 84.

[15] See Spater, supra note 2, at 27.

[16] See Kramon, supra note 4, at 85.

[17] Ibid.

[18] Ibid.

[19] Id. at 86-87.

[20] Id. at 88-89.

[21] Kramon, supra note 4, at 89 states:

> In summary, the nuisance theory is unworkable as a vehicle for forcing enterprises to assume social costs which are associated with them. Private litigation takes place only after a decision to employ particular technology has been made. There is waste inherent in a system which allows the construction of expensive facilities and decides after operations begin that they are too noisy and must pay their way in tort judgments or be enjoined from operation. The judicial forum is not well-suited to decide how much noise is really detrimental to the community and how great will be the price of eliminating it.

With respect to the theory of "strict liability" see Township of Hanover v. Town of Morristown, 261 A. 2d 692, 702 (1969).

Kramon, supra note 4, at 85, states with respect to the application of this theory:

> It has been suggested, particularly with respect to airport noise, that these problems might be avoided by adoption of a standard of strict liability in nuisance suits. Such a theory, it is argued, would dispense with the need for balancing such imponderables as community interest and would enable the private tort suit to serve as a useful vehicle for forcing

> enterprises to bear the costs they create. It is further suggested that the certainty inherent in a theory of strict liability would allow investors and other first-level decision makers to enjoy greater predictability in estimating their costs. Strict liability for noise would be useful in cases where there is only one source of noise involved such as airport noise. But this approach would be ineffective in controlling noise which is the result of a large number of sources. For example it would be difficult to say that building and repairing noises ought to incur strict liability. Such noise is generally one of a number of noise sources which combine to create a high noise level in a particular area.

[22] See discussion by Kramon, supra note 4, at 92-94, of "anti-noise ordinances."

It should be noted that this conclusion is not shared by some commentators. See Fadem, Jerrold A., and Michael M. Berger, "A Noisy Airport is a Damned Nuisance!" 3 S.W. L. Rev. 39, 44 (1970). See also Katz, Milton, "The Function of Tort Liability in Technology Assessment," 38 Cinc. L. Rev. 587-662 (1969).

[23] See Katz, supra note 8, at 18.

[24] 26 N.Y. 2d 219, 222-223, 257 N.E. 2d 870, 871 (1970).

[25] See Katz, supra note 8, at 17-19.

[26] Id. at 19.

[27] Ibid.

[28] Id. at 19-20.

[29] Id. at 20.

[30] Ibid.

[31] Id. at 21.

[32] Id. at 22.

[33] See Kramon, supra note 4, at 94.

[34] Spater, supra note 2, at 30.

[35] See Kramon, supra note 4, at 86.

[36] See Tondel, "Noise Litigation at Public Airports" in the Office of Science and Technology Report on the Alleviation of Jet Aircraft Noise Near Airports (Report of the Jet Aircraft Noise Panel) 117, 125 (1966), quoted in The Noise Around Us, supra note 7, at 139-140.

[37] 233 U.S. 546 (1914).

[38] Spater, supra note 2, at 31.

[39] Ibid.

[40] Ibid.

[41] See Kramon, supra note 4, at 86, citing Atkinson v. City of Dallas, 353 S.W. 2d 275 (Tex Civ. App. 1961), cert. denied, 370 U.S. 939 (1962) and Loma Portal Civic Club v. American Airlines, Inc., 61 Cal. 2d 582, 394 P. 2d 548, 39 Cal. Rptr. 708 (1964).

[42] The Noise Around Us, supra note 7, at 140.

[43] See The Noise Around Us, supra note 7, at 140.

[44] See Kramon, supra note 4, at 89.

[45] Id. at 89. It should be noted that in situations where the government is the proprietor, it may be possible to require adherence to standards which are more strict than in situations where government acts only in the capacity of a regulatory agency.

[46] The Noise Around Us, supra note 7, at 140.

See Lesser, Joseph, "The Aircraft Noise Problem: Federal Power but Local Liability," in 3 The Urban Lawyer 175, 184 (1971), who noted that in Butler v. Frontier Telephone Co. 186 N.Y. 486, 491, 79 N.E. 716, 718 (1906), this maxim of the English common law is quoted as "cujus est solum ejus est usque ad coelum et ad inferos" (he, who owns the soil, owns it from the heavens to the depths of the earth).

[47] Federal Aviation Act of 1958, §104, 49 U.S.C. §1304 (1964).

[48] Federal Aviation Act of 1958, §101(24), 49 U.S.C. 1301(24) (1964).

[49] 328 U.S. 256 (1946). In this case the Court stated that "The airspace, apart from the immediate reaches above the land, is part of the public domain." Id. at 266.

[50] 369 U.S. 84 (1962).

[51] See Kramon, supra note 4, at 90.

[52] 328 U.S. 256, 265 (1946).

The Federal Tort Claims Act has not been a useful tool in the hands of private citizens to obtain relief from noise sources authorized or operated by the Federal government. The placement and regulation of such sources is held to be a discretionary function at the planning level for which the government has reserved itself sovereign immunity under the exceptions to the application of the Federal Tort Claims Act outlined in 28 U.S.C. 2680(a).

The Act requires some misfeasance or nonfeasance for its application in that it can only be invoked upon a negligent or wrongful act or ommission of a governmental employee at the operational level. Dalehite v. United States 346 U.S. 15, 73 S.Ct. 956 (1953). This holding is a reiteration of the notion of legalized nuisance as it has been stated in Richards v. Washington Terminal Co. 233 U.S. 546, 34 S. Ct. 654 (1914).

Recovery for damages under the Act has been allowed where Federal employees functioning at an operational level have acted in violation of statutes or regulations, promulgated at the discretionary planning level, designed to protect members of the class to which the injured party belongs and the harm is of the type which the regulation or statute was intended to prevent. Wildwood Mink Ranch v. United States 218 F. Supp. 67 (D. Minn. 1963); Dahlstrom v. United States 228 F. 2d 819 (8 Cir. 1956).

Thus it follows that only when the United States has promulgated regulations and statutes designed to protect the public from specific measurable noise levels will the Federal Tort Claims Act be useful to gain relief for damages caused by government authorized sources that have exceeded those levels because of the wrongful acts of its employees.

See also Spater, supra note 2, at 48, and The Noise Around Us, supra note 7, at 156, n. 16.

An expression to the contrary may be found in the article by Lesser, supra note 46, at 184:

> It is certainly arguable that if the Federal Tort Claims Act (which was enacted two months after Causby was decided) had existed at the time the suit was instituted in 1944, the cause of action alleged would have sounded in tort, as had the previous aircraft noise cases, rather than in constitutional law.

[53] 369 U.S. 85, 86 (1962).

[54] The Noise Around Us, supra note 7, at 141.

[55] Ibid.

[56] Spater, supra note 2, at 40.

[57] Id. at 41.

[58] Id. at 37-38. Spater notes, however, in footnote 76 to his article that "Once a taking occurs, the damage from noise is compensable." And in discussing why the adjacent landowner cannot recover, he states:

> Thus, despite the assumed equality of the noise level, there is a very different impact on the two landowners. Both have been damaged, but in only one case has property been taken. And the Federal constitution, along with half of the state constitutions, provides for compensation only when there has been a taking. Once the taking is established, the landowner may recover for consequential damages to the balance of his property, and this would include the damage from noise of aircraft utilizing the flight path. This principle that a landowner whose property is taken may recover for consequential damages to his remaining property, but that a neighboring landowner may not recover for damage arising from the same objectionable activity, was well established long before noise from airplanes became a problem. Id. at 44.

Spater also attempts to buttress his position that a physical invasion of the immediate airspace over the landowner constitutes a taking by suggestion that "fear" is a constituent element of the overflight which presumably would not be a concern of an adjacent landowner. See Spater, supra note 2, n. 85 at 44. Apart from the dubious nature of this proposition, fear often accompanies noise from a mobile source or flying objects attendant to objectionable noise. See *Washington Post*, July 16, 1971, §c, at 3, col. 1, "Quarry Blasts Shake Up Neighbors," wherein one affected person states: "It's like the whole house is coming down. I just holler, those blasts scare me so. With so much noise, I just don't know what's happening."

[59] 306 F. 2d 580 (10th Cir. 1962), *cert. denied*., 371 U.S. 955, *rehearing denied* 372 U.S. 925 (1963).

[60] *Id*. at 584. See also *Mosher* v. *City of Boulder*, 225 F. Supp. 32 (D. Colo. 1964).

[61] James D. Hill in "Liability for Aircraft Noise - The Aftermath of Causby and Griggs," 19 *U. Miami L. Rev*. 1 (1964), criticizes the *Batten* case holding as "unsound." *Id*. at 29. "It cannot be dismissed as a case involving only consequential damage, as the trial court found a diminution in value of from $4,700 to $8,800 - from 40.8 per cent to 55.3 per cent - in the ten homes involved." *Ibid*. He finds support for his view in *Thornburg* v. *Port of Portland*, 233 Ore. 178, 376 P. 2d 100 (1962), that "lateral noise may diminish the value of subjacent property as much as vertical noise." *Id*. at 31. He also states:

> It is a sterile formality to say that the government takes an easement in private property when it repeatedly sends aircraft directly over the land at altitudes so low as to render the land unusable by its owner, but does not take an easement when it sends aircraft a few feet to the right or left of the perpendicular boundaries (thereby rendering the same land equally unusable). The line on the ground which marks the landowner's right to deflect surface invaders has no particular relevance when the invasion is a noise nuisance. *Id*. at 30.

[62] Comment, 74 *Harv*. *L. Rev*. 1581, 1585 (1961). This Comment also states: "Attention would be focused on the degree of actual interference, rather than on formalistic factors like the relationship of the flight path to a particular zone or column of air space. *Id*. at 1583.

[63] See Spater, *supra* note 2, at 48 and *The Noise Around Us*, *supra* note 7, at 157.

[64] See Spater, *supra* note 2, at 50.

[65] *Id.* at 51.

[66] Kramon, *supra* note 4, at 89-90. See also *Dennison* v. *State of New York*, 22 N.Y. 2d 409, 239 N.E. 2d 708, 293 N.Y.S. 2d 68 (1968), subsequently discussed in subsection 2.4.2.

[67] The Report on *The Noise Around Us*, *supra* note 7, at 140, states that "The Constitutional taking theory, which has been increasingly relied upon by attorneys, is perhaps most significant." A portion of the footnote to this statement adds, however:

> Nevertheless, Mr. Tondel reports that in the period 1956-66 damages were recovered in only five cases against civil airport operations on a constitutional taking theory involving a total of $71,584,...However, in February of 1970 a trial court in California awarded $750,000 to residents for damages to their properties located in close proximity to Los Angeles International Airport on this theory. *Aaron* v. *City of Los Angeles*, No. 837 799 (S.Ct. Cal. February 5, 1970). *Id.* at 155.

There have been a number of suits somewhat similar to *Causby* brought against the United States involving military aircraft since 1946. See, for example, *Highland Park* v. *United States*, 161 F. Supp. 597 (Ct. Cl. 1958) and other cases discussed by Lesser, *supra* note 46, at 187-188. Some substantial judgments have been awarded for a "taking" of property caused by noise and vibration, for direct and immediate interference with the landowner's use and enjoyment of his property, and for the taking of avigational easements. The award of damages in several cases can be attributed to the sensitive recognition by the Court of Claims that jet flights:

> ...made a greater and more piercing noise, and caused much greater vibration than the propeller driven planes had. *Highland Park*, *supra* at 599.

and further that:

> ...all conversation had to cease, radio and television reception was disrupted, the windows in the houses shook, dishes rattled on the shelves, sleep was disrupted, and the noise was so great as to be painful to the ears of some of the residents. Some were in a constant state of anxiety, and even had to undergo medical care for nervous disorders... *Ibid*.

The Court of Claims awarded damages in the total amount of $140,000 for the taking of avigation easements over twelve farms situated near an Arizona airforce base. Adaman Mutual Water Co. v. United States, 181 F. Supp. 658 (Ct. Cl. 1958). See discussion in Lesser, supra note 46, at 187. The amount plaintiff would lose when his property was sold was the measure applied in the case of Herring v. United States, 162 F. Supp. 769 (Ct. Cl. 1958).

In the recent case of Town of East Haven v. Eastern Airlines, Inc., et al., 331 F. Supp. 16 (1971) wherein the Town of East Haven, individual homeowners and another individual brought an action against the city of New Haven and commercial airlines seeking injunctive relief and damages with respect to the airport owned and operated by the city and used by the airlines in the operation of turbo-prop and jet aircraft, the U.S. District Court (D. Conn.) held that where such aircraft passed over or very nearly over homes several times a day at altitudes of less than 500 feet, there was a compensable "taking" by the city which owned and operated the airport. No compensable "taking" of a permanent easement was found with respect to the airlines using the airport even though the airport was part of the National Airport Plan and was designated in accordance with federal regulations. The Court further held that there had been no "taking" of other properties in the vicinity which were subjected only to occasional overflights or to noise, soot, and fumes caused by aircraft taxiing or idling at the nearby terminal and that none of the homeowners were entitled to separate damages for mental anguish, interference with peace and quiet, or for fear.

[68] See note 62 supra. In this connection see discussion of City of Jacksonville v. Schumann, 167 So. 2d 95 (Fla. 1964) in subsection 2.4.1 B, infra.

[69] 233 Ore. 178, 376 P. 2d 100 (1962).

[70] Id. at 186, 376 P. 2d 100, 108 (1962).

[71] 64 Wash 2d 309, 391 P. 2d 540 (1964), cert. denied, 379 U.S. 989 (1965).

Hill, supra note 61, at 31, explains that the court divided the claimants into three classes in this case: Group A claimants were subject to direct overflights, Group B claimants as to which evidence of overflight was in conflict, and Group C claimants which were not subject to overflights. The court held that all three groups of claimants were entitled to compensation and expressly rejected the Batten holding:

> This requirement, that a landowner show a direct overflight as a condition precedent to recovery of the damages to his land, is presently stressed by some federal courts in construing the "taking" as contemplated by the Fourteenth Amendment to the Federal Constitution. Batten v. United States (10th Cir. 1962), 306 F. 2d 580. We are unable to accept the premise that recovery for interference with the use of land should depend upon anything as irrelevant as whether the wing tip of the aircraft passes through some fraction of an inch of the airspace directly above the plaintiff's land. The plaintiffs are not seeking recovery for a technical trespass, but for a combination of circumstances engendered by the nearby flights which interfere with the use and enjoyment of their land. 391 P. 2d 540, 545 (1964).

[72] Id. at 64 Wash. 2d 309, 391 P.2d 540, 547, U.S. cert. denied in 379 U.S. 989 (1965).

[73] Spater, supra note 2, at 53.

[74] Ibid.

[75] See Kramon, supra note 4, at 90, and cases cited in footnotes 46 and 47, including Dennison v. State of New York, 22 N.Y. 2d 409, 239 N.E. 2d 708, 293 N.Y.S. 2d 68 (1968).

[76] Ibid.

[77] Ibid.

[78] Id. at 91.

[79] See Report on The Noise Around Us, supra note 7, at 142. Greenwald, supra note 1, at 1, provides the following statement relative to Federal authority for noise control:

> The law of noise derives from the supreme law of the land - The United States Constitution. The Constitution's Preamble sets forth the purpose; the commerce clause, the regulatory power; and the amendments, the private rights. The Constitution's Preamble cites as one of the purposes and objectives for which it was promulgated: "To assure domestic tranquility." Tranquility has been legally defined

> as the state or character of being quiet or "quietness" (87 C.J.S. 886). Disruption of quietness is generally associated with commercial activities. The Constitution vests in Congress the right to regulate interstate and foreign commerce (Article 1, Section 8).
>
> This Congressional authority to regulate noise under the Commerce Clause is limited by Common Law (the law by which the Constitution is judicially interpreted). Common Law holds the right of habitation superior to the right of commerce (Alred's Case 9, Cope 58).
>
> Habitation quietude is guaranteed by the 5th, 9th, and 14th Amendments of the Constitution. The Fifth Amendment assures individual due process and individual right of private property. As related to noise it protects against such conduct as noise trespass or noise invasion. The Ninth Amendment reserves to the people all undelegated powers. As related to noise, it preserves state, local and private right to regulate noise. The Fourteenth Amendment guarantees that no state shall deny due process or equal protection under the law. As related to noise, it limits governmental power to deprive persons the benefits of quietude or other civil rights. (See Shelly vs. Kraemer, 334 U.S.1., 685 Ct. 836; 92 L.FD. 1161)

[80] See Goldstein, Sidney and Albert H. Odell, Comments on the Problem of Jet Aircraft Noise (The Port of New York Authority, June 1966), (Two papers presented before the Panel on Jet Aircraft Noise convened by Dr. Donald F. Hornig, Director, Office of Science and Technology, Executive Office of the President, Washington, D.C., October 29, 1965):

> The jurisdiction of the Federal Government over air as well as over all forms of transportation stems primarily from the Constitution's commerce clause, though the postal and military powers are also involved. The commerce clause provides that: "The Congress shall have power***To regulate Commerce with foreign Nations, and among the several States ***." This clause operates not only as a grant of power to the Federal Government but also as a restriction upon State authority. Id. at 3.

[81] See discussion of the police power in Note, Environmental Control: Higher State Standards and the Question of Preemption, 55 Cornell L. Rev. 847, 849-850 (1970). The Tenth Amendment provides that "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." The Ninth Amendment provides that "The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people." The Cornell Note cites Edelman, "Federal Air and Water Control: The Application of the Commerce Power to Abate Interstate and Intrastate Pollution," 33 Geo. Wash. L. Rev. 1067, 1076-77 (1965) for the proposition that "The protection of public health and welfare can be a concomitant of the exercise of the federal commerce power." *Id.* at 850, footnote 16 and 17. The Cornell Note further asserts that:

> A federal power analogous to the police power is derived from the general welfare clause. This clause has been interpreted as a substantive grant of legislative power to Congress. Further support for analogous federal power is provided by the broad construction of the "necessary and proper" clause which led to the doctrine of implicit powers. The latter clause was held to justify all legislative means appropriate to achieving legitimate ends of the Constitution, thus paving the way for Congress to expand the powers enumerated in the Constitution by exercising them for ulterior police purposes.
>
> Activities regulated by the state under its police power may also come under federal control via the power of Congress over particular subject matter, without regard to health and safety objectives. Thus the federal commerce, proprietary, admiralty, defense, taxing, and spending powers have been the basis of federal regulation of matters such as radiation from atomic energy sources, air pollution, and water pollution. *Id.* at 850.

[82] 291 U.S. 502 (1934).

[83] *Id.* at 504.

[84] 348 U.S. 26 (1954).

[85] Id. at 32.

[86] 300 U.S. 379 (1937). In this connection, see also Nebbia v. New York, 291 U.S. 502 (1934):

> The court has repeatedly sustained curtailment of enjoyment of private property, in the public interest. The owner's rights may be subordinated to the needs of other private owners whose pursuits are vital to the paramount interests of the community. The state may control the use of property in various ways may prohibit advertising bill boards except of a prescribed size and location, or their use for certain kinds of advertising; may in certain circumstances authorize encroachments by party walls in cities; may fix the height of buildings, the character of materials, and methods of construction, the adjoining area which must be left open, and may exclude from residential sections offensive trades, industries and structures likely injuriously to affect the public health or safety; or may establish zones within which certain types of buildings or businesses are permitted and others excluded. And although the Fourteenth Amendment extends protection to aliens as well as citizens, a state may for adequate reasons of policy exclude aliens altogether from the use and occupancy of land.
>
> Laws passed for the suppression of immorality, in the interest of health, to secure fair trade practices, and to safeguard the interests of depositors in banks, have been found consistent with due process. These measures not only affected the use of private property, but also interfered with the right of private contract. Other instances are numerous where valid regulation has restricted the right of contract, while less directly affecting property rights.
>
> The Constitution does not guarantee the unrestricted privilege to engage in a business or to conduct it as one pleases. Certain kinds of business may be prohibited; and the right to conduct a business, or to pursue a calling, may be conditioned. Regulation of a business to prevent waste of the state's resources may be justified. And statutes prescribing the terms

> upon which those conducting certain businesses may contract, or imposing terms if they do enter into agreements, are within the state's competency. Id. at 526-528.

[87] West Coast Hotel Co. v. Parrish, 300 U.S. 379, 380 (1937).

[88] Id. at 382.

[89] Day*Brite Lighting v. Missouri, 342 U.S. 421, 424 (1952).

[90] See Nebbia v. New York, supra note 82.

> So far as the requirement of due process is concerned, and in the absence of other constitutional restriction, a state is free to adopt whatever economic policy may reasonably be deemed to promote public welfare, and to enforce that policy by legislation adapted to its purpose. The courts are without authority either to declare such policy, or, when it is declared by the legislature, to override it. If the laws passed are seen to have a reasonable relation to a proper legislative purpose, and are neither arbitrary nor discriminatory, the requirements of due process are satisfied, and judicial determination to that effect renders a court functus officio. . . .With the wisdom of the policy adopted, with the adequacy or practicability of the law enacted to forward it, the courts are both incompetent and unauthorized to deal. The course of decision in this court exhibits a firm adherence to these principles. Times without number we have said that the Legislature is primarily the judge of the necessity of such an enactment, that every possible presumption is in favor of its validity, and that though the court may hold views inconsistent with the wisdom of the law, it may not be annulled unless palpably in excess of legislative power. Id. at 537-538.

[91] 260 U.S. 393, 415-416 (1922).

> In EUCLID v. AMBLER REALITY Co., 272 U.S. 365 (1926): Plaintiff brought suit in a federal district court to enjoin the enforcement of a comprehensive zoning ordinance. An injunction was granted. On appeal the Supreme Court reversed. The Court said, in part:

> "The ordinance now under review, and all similar laws and regulations, must find their justification in some aspect of the police power, asserted for the public welfare. The line which in this field separates the legitimate from the illegitimate assumption of power is not capable of precise delimitation. It varies with circumstances and conditions. A regulatory zoning ordinance, which would be clearly valid as applied to the great cities, might be clearly invalid as applied to rural communities. In solving doubts, the maxim sic utere tuo ut alienuum non laedas, which lies at the foundation of so much of the common law of nuisances, ordinarily will furnish a fairly helpful clew. And the law of nuisances, likewise, may be consulted, not for the purpose of controlling, but for the helpful aid of its analogies in the process of ascertaining the scope of, the power. Thus the question whether the power exists to forbid the erection of a building of a particular kind or for a particular use, like the question whether a particular thing is a nuisance, is to be determined, not by an abstract consideration of the building or of the thing considered apart, but by considering it in connection with the circumstances and the locality.

[92] See note 7, supra, at 146.

[93] 22 U.S. (9 Wheat.) 1 (1824).

[94] Cushman & Cushman, Cases in Constitutional Law at 315-316 (1958).

[95] 53 U.S. (12 How.) 299 (1851).

[96] Wabash, St.L. & P.Ry. v. Illinois, 118 U.S. 557 (1886).

[97] Interstate Commerce Act of 1887, 48 U.S.C. §1 (1964).

[98] 325 U.S. 761 (1945).

[99] Id. at 783-784.

[100] 303 U.S. 177 (1938).

[101] Id. at 179.

[102] Id. at 181.

[103] Report No. 1026, Vehicles Weights and Dimensions, Committee on Public Works of the U.S. Senate on S. 2658, March 27, 1968, at 2.

[104] Id. at 1. However, see Bibb v. Navajo Freight Lines, 359 U.S. 526 (1959), discussed infra in subsection 2.4.2.

[105] Southern Pacific Co. v. Arizona, 325 U.S. 761, at 767 (1945).

[106] 362 U.S. 440, 441-443 (1960).

[107] Id. at 443.

[108] 407 F. 2d 1306 (1969), cert. denied 396 U.S. 845 (1969).

[109] 36 ALR 3d 1310 (1971).

[110] Id. at 1315.

[111] A town ordinance which prohibited seaplanes from taking off or landing upon any portion of the channel system of the town, except in emergency situations, was held to be a proper exercise of the town's police power, having in mind the safety of its residents, to prohibit air traffic upon its channels, in People v. Sturgis v. Bridgeman, L.R. 11 Ch. 852, 865. A nuisance may be merely a right thing in the wrong place,--like a pig in the parlor instead of the barnyard. If the validity of the legislative classification for zoning purposes be fairly debatable, the legislative judgment must be allowed to control. Radice v. New York, 264 U.S. 292, 294." Id. at 387-388.

The concept of eminent domain and practices thereunder have been treated extensively in the literature. An excellent discussion of the various theories can be found in the article by Professor Joseph L. Sax, "Takings and the Police Power," 74 Yale L. Jou. 36 (1964) wherein the author finds inadequacies in "The Invasion Theory," "The Noxious Use Theory," and "The Diminution of Value Theory." He then undertakes to formulate a theory for the "Taking Cases," saying in part:

> The rule proposed here is that when economic loss is incurred as a result of government enhancement of its resource position in its enterprise capacity, then compensation is constitutionally required; it is that result which is to be characterized as a

> taking. But losses, however severe, incurred as a consequence of government acting merely in its arbitral capacity are to be viewed as a non-compensable exercise of the police power. Id. at 63.
>
> It remains now only to observe how the proposed theory works when applied to the cases. The precise rule to be applied is this: when an individual or limited group in society sustains a detriment to legally acquired existing economic values as a consequence of government activity which enhances the economic value of some governmental enterprise, then the act is a taking, and compensation is constitutionally required; but when the challenged act is an improvement of the public condition through resolution of conflict within the private sector of the society, compensation is not constitutionally required. Id. at 67.

Sax applied this theory to three airport noise situations. 1) Direct overflights as in Causby; 2) the imposition of noise and glare over a neighboring tract of land; and 3) Appropriate zoning of land near an airport to prevent the problem from arising. Id. at 67-68. The author asserts that: "(U)nder the test here proposed the three airport noise situations would be treated identically, and as quite simple and straightforward (compensable taking) cases." Id. at 69.

> Altman (1969) 61 Misc. 2d 4, 304 N.Y.S. 2d 534, the court finding the defendant guilty of violating the ordinance. Attacking the ordinance as unconstitutional, the defendant argued: first, that local governments were pre-empted from governing in this area by federal laws and by administrative action of the Federal Aviation Agency; and secondly, that the ordinance placed an unconstitutional burden upon interstate commerce. Rejecting defendant's first argument, the court said that while it was true that an ordinance must fail when the area has been preempted by the Federal Government, as where the scheme of federal regulation is so pervasive as to make reasonable the inference that Congress left no room for the states to supplement it, the court went on to say that it was equally true that such local legislation survived when its conflict with federal law was indirect and not wholly repugnant to the federal statute so that in the end the two were reconciled. As to defendant's second argument, the court said

that although the commerce clause delegated to Congress the authority to regulate interstate commerce, the states could exercise their police powers within matters of purely local concern by enacting legislation which had an incidental effect upon that commerce, so long as the regulation was reasonable and necessary and did not unduly burden the flow of interstate commerce. Id. at 1317.

(I)n State v. McNaney (Md. Crim. Ct., Baltimore)(1950) U.S. Av 144, the court held that an ordinance which made it unlawful for an airplane to fly or pass over a stadium while an event was in progress for any advertising or commercial purposes whatsoever was a reasonable and necessary exercise of the police power in order to protect lives and property, and was therefore valid and warranted conviction of a defendant who had flown an airplane towing an advertising banner over the stadium during the progress of a football game, notwithstanding the distinction made by the ordinance between advertising and non-advertising aircraft. Ibid.

[112] A village ordinance which prohibited air flights at less than 1,000 feet when passing over the village was held invalid because it conflicted with federal statutes which pre-empted the field of air traffic regulation, in Allegheny Airlines, Inc. v. Cedarhurst (1956, CA2 NY) 238 F. 2d 812, the court affirming judgment in favor of the airlines. First the court pointed out that the village did not dispute that the Federal Government had pre-empted the field of regulation and control of the flight of aircraft in the airspace 1,000 feet or more above the ground, but that the village contended that Congress had not purported to pre-empt the airspace under 1,000 feet, such area being necessary for take-offs from and landings at the airport. The court went on to review the Civil Aeronautics Act of 1938, which empowered the Civil Aeronautics Board to make rules as to safe altitudes of flight at any elevations, and, said the court, the provisions contained no suggestion that "navigable airspace" was restricted to airspace of not less than 1,000 feet above the ground. On the contrary, the congressional purpose was clear to empower the Board to make rules as to safe altitudes of flight at any elevation, said the

> court, since its rules were to have, among other objects, prevention of collisions between aircraft, and between aircraft and land or water vehicles. Obviously, said the court, the greatest danger of such collisions arises when an aircraft takes off or lands. The court concluded that the village's argument that the Board had itself established the minimum safe altitude of flight over a congested area, such as Cedarhurst, at 1,000 feet, completely disregarded the express exception of takeoff and landing referred to in the regulation, which in effect said that except when necessary for takeoff or landing, no person shall operate an aircraft below 1,000 feet over congested areas. Id. at 1318-1319.

[113] Public Law 89-80, (July 22, 1965), 79 Stat. 244.

[114] Public Law 91-190 (January 1, 1970), 83 Stat. 852.

[115] Id. at Sec. 101.

[116] Id. at Sec. 202.

[117] Id. at Sec. 201.

[118] Title II of an Act to amend the Federal Water Pollution Control Act, as amended, and for other purposes, of Public Law 91-224 (April 3, 1970) 84 Stat. 91.

[119] Id. at §203.

[120] Id. at §202. §204 provides that:

> Each Environmental Quality Report required by Public Law Law 91-190 shall, upon transmittal to Congress, be referred to each standing committee having jurisdiction over any part of the subject matter of the Report.

[121] Public Law 91-604 (December 31, 1970) 84 Stat. 1676 (An Act to amend the Clean Air Act to provide for a more effective program to improve the quality of the Nation's air).

[122] New §108 of the Clean Air Act.

[123] New §109 of the Clean Air Act.

[124] Amendment to §202 of the Clean Air Act.

[125] Amendment to §203(a)(1) of the Clean Air Act.

[126] New §206 of the Clean Air Act.

[127] Amendment to §211 of the Clean Air Act.

[128] New §212 of the Clean Air Act.

[129] New §231 and §232 of the Clean Air Act.

[130] New §303 of the Clean Air Act.

[131] New §306 of the Clean Air Act.

[132] Airport and Airway Development Act of 1970, §16(c)(1)(A) and §18(4); Public Law 91-258, 84 Stat. 219.

[133] *Id*. at §16(c)(4).

[134] *The Noise Around Us*, *supra* note 7, at 146.

[135] 36 *Geo. Wash. L. Rev*. 1105 (1968).

[136] *Id*. at 1120.

[137] Department of Transportation Act of 1966, 80 Stat. 931, 49 U.S.C. §§1651-1653 (Supp. IV, 1968).

[138] Report of the Jet Aircraft Noise Panel of the Office of Science and Technology, Executive Office of the President, on *Alleviation of Jet Aircraft Noise Near Airports* of March, 1966, at 6.

[139] *Id*. at 8.

[140] Report No. 1463 on Aircraft Noise Abatement to accompany H.R. 3400, committed to the Committee of the Whole House on the State of the Union, May 23, 1968, at 18-19 (Hereinafter cited as Report No. 1463). See NASA Release of August 27, 1971, No: 71-156 re "First Quiet Engine Noise Tests."

[141] *Id*. at 3-4.

[142] Report No. 1353 of the Senate Committee on Commerce on *Aircraft Noise Abatement* to accompany H.R. 3400 of July 1, 1968 (Hereinafter cited as Report No. 1353).

[143] Id. at 6-7.

[144] Notice of Proposed Rule Making, "Noise Standards: Aircraft Type Certification," U.S. Department of Transportation, Federal Aviation Administration, Docket No. 9337, Notice No. 69-1, January 3, 1969 (Hereinafter cited as Notice).

[145] Federal Aviation Act of 1958, §611, 49 U.S.C. §1431 (Supp. IV, 1968).

[146] Notice, supra note 144, at 2.

[147] Notice, supra note 144, at 25-28.

[148] Federal Aviation Act of 1958, 49 U.S.C., §1301 et seq. (1964).

[149] Greenwald, supra note 1, at 7.

[150] Federal Aviation Act of 1958, 49 U.S.C., §§1421-1430 (1964), as amended, October 15, 1966, §6, 80 Stat. 937, 49 U.S.C. 1655(c)(1) (Supp. IV, 1969).

[151] See discussion of these points in "Port Noise Complaint" 6 Harv. Civ. Rights-Civ. Lib. L.R. 61, 89-91 (December, 1970). See also Id. at 90, n. 131.

[152] 14 C.F.R. Part 36, §201 (1970).

[153] See subsection 1.1.2B, supra, at 1-21.

[154] Greenwald, supra note 1, at 8.

[155] "Port Noise Complaint," supra note 151, at 95-96.

[156] Id. at 61-62.

[157] Id. at 98.

[158] Id. at 99-100.

[159] Title 4, Department of Aeronautics (Register 70, No. 48--11-28-70), Subchapter 6. Noise Standards, Article 1, at 391.

[160] Id. at 5000, p. 392.

[161] "An Introduction to the Adopted Noise Regulations for California Airports," of November 13, 1970.

[162] Id. at 3-4.

[163] Title 4, supra note 159, at 191-192.

[164] Greenwald, supra note 1, at 8-9.

[165] The Noise Around Us, supra note 7, at 148-149.

[166] Lesser, supra note 46, at 181.

[167] The Air Commerce Act of 1926, 44 Stat. 568, was the first Congressional enactment regulating air commerce. It conferred "a public right of freedom of interstate and foreign air navigation" through "navigable airspace." See discussion of the provisions of this Act in Lesser, supra note 46, at 176-178. The author makes reference to the Civil Aeronautics Act of 1938 which replaced the 1926 statute and wherein the existence of "a public right of freedom of transit in air commerce through the navigable air space of the United States" was again declared. §3, Civil Aeronautics Act Act of 1938, 52 Stat.973, 980. "Navigable Airspace" was defined as: "air space above the minimum altitudes of flight prescribed by regulations issued under this Act." §1(24), Civil Aeronautics Act of 1938. Lesser states that:

> Pursuant to this authorization, the newly-created Civil Aeronautics Authority issued civil air regulations which specified that no person shall operate aircraft over congested areas below an altitude of 1000 feet or below 500 feet over noncongested areas, "Exclusive of taking off from or landing upon an airport or other landing area..." 14 C.F.R.60.350 (1943).

Lesser, supra note 46, at 182.

[168] Lesser, supra note 46, at 184, comments on post-Causby cases as follows:

> The aircraft noise suits, decided in the years immediately following Causby, were the traditional type of State-created actions for trespass and nuisance. Since most of these suits were brought against private, rather than governmental defendants, property owners were generally unable to take advantage of the constitutionally-based cause of action which the Supreme Court had created in Causby. In some of these cases, damages were awarded and/or injunctions issued (cited in Lesser, f.n. 80); in others the defendant was successful (cited in f.n.

81). But injunctive relief was never granted against operations at a publicly operated airport, though in one case a municipal airport operator was ordered to adopt and enforce regulations "fixing the minimum reasonable height at which planes may be flown over the property of plaintiffs." (Citing *Brooks* v. *Patterson*, 159 Fla. 263, 272-273, 31 So. 2d 472, 477 (1947).

[169] *Id*. at 184.

[170] Cedarhurst ordinance as quoted in *All American Airways, Inc*. v. *Village of Cedarhurst*, 201 F. 2d 273, 275 (2d Cir. 1953).

[171] Lesser, *supra* note 46, at 185-186.

[172] *City of Newark* v. *Eastern Airlines, Inc*., 159 F. Supp. 750 (D.N.J., 158).

[173] Lesser, *supra* note 46, at 187.

[174] 369 U.S. 84 (1962).

[175] Lesser, *supra* note 46, at 188-189.

[176] *Griggs* v. *County of Allegheny*, 402, 411, 419, 168 A 2d. 123, 127 (1961).

[177] *Ackerman* v. *Port of Seattle*, 55 Wash. 2d 400, 348 P. 2d 664 (1960).

[178] Lesser, *supra* note 46, at 190.

[179] Federal Aviation Act of 1958, §101(24), 49 U.S.C. §1301 (1964).

[180] 369 U.S. 84 (1962).

[181] *Id*. at 86.

[182] *Id*. at 89.

[183] *Ibid*.

[184] Lesser, *supra* note 46, at 191.

[185] 369 U.S. 84, 91.

[186] *Id*. at 93-94.

[187] American Airlines, et al., Port of New York Authority, et al., v. Town of Hempstead, 272 F. Supp. 266 (E.D.N.Y. 1967), aff'd., 398 F. 2d 369 (2d 369 (2d Cir. 1968), cert. denied, 393 U.S. 1017 (1969).

[188] 272 F. Supp. 226, 230.

[189] Lesser, supra note 46, at 197, no. 147.

[190] 297 F. Supp. 207 (W.D.Ky. 1968), aff'd., 407 F 2d 1306 (7th Cir. 1969), cert. denied, 396 U.S. 845 (1969).

[191] 2 Cal. App. 3d 318, 82 Cal. Rptr. 578 (1969).

[192] The Court recited a California Public Utilities Code which gave certain powers to a city with a municipally owned airport: "In connection with the erection or maintenance of such airports or facilities, a local agency may: (f) regulate the use of the airport and facilties..." The opinion states: "The subject matter of the Santa Monica ordinance clearly comes under the cities' power to 'regulate the use of the airport.' The ordinance may also be upheld as a valid exercise of the municipality's police power." Id. at 82 Cal. Rptr. 578, 581 (1969).

[193] 318 F. Supp. 914 (C.D. Cal. 1970).

[194] Id. at 920. The opinion also states: "In the instant case, the FAA, on September 4, 1969, issued a noise abatement order for HBA making runway No. 25 a preferential runway for departure from 11:00 p.m. to 7:00 a.m....This preference was a noise abatement measure for the benefit of the City of Burbank." (Id. at 923)

[195] Ibid.

[196] 272 U.S. 605 (1926). (Court found that the Interstate Commerce Commission Boiler Inspection Act applied to locomotives in interstate commerce even if operated wholly within one State and not engaged in hauling interstate freight.)

[197] 331 U.S. 218 (1947). The Supreme Court applied three tests for preemption: 1) pervasive scheme of Federal regulation; 2) field of dominant Federal interest; and 3) state policy may produce a result inconsistent with the objective of the Federal statute.

[198] 318 F. Supp. 914, 925.

[199] See note 142 supra.

[200] 318 F. Supp. 914, 925.

[201] Id. at 926.

[202] Id. at 927.

[203] Id. at 928.

[204] 261 A. 2d 692.(1969).

[205] Id. at 698.

[206] Id. at 699.

[207] Id. at 701.

[208] Id. at 705.

[209] Id. at 706.

[210] Id. at 707.

[211] Id. at 696, 701.

[212] Id. at 708.

[213] Id. at 707. After noting that Public Law 90-411 which added §611 to the Federal Aviation Act of 1958 strengthened the position of the Federal government in the aircraft noise regulation field, Lewin concludes:

> The precise legal effect of expanding power of the FAA has not as yet been determined. The question of whether municipalities can set lower maximum noise levels in cases where interstate commerce would not be burdened but where the FAA has already set these levels is yet to be determined by the Courts.
>
> Lewin, Stuart F., Alan H. Gordon, Channing Hartetius, Law and the Municipal Ecology, Part II, "Noise Pollution" at 74 (NIMLO Research Report 156, 1970).

[214] Lesser, supra note 46, at 198. Apparently, only Washington National Airport has a total ban on jet operations during certain hours of the night. See "Airport Noise and Airport Neighbors", at 30, of DOT/HUD's A Study of Logan International Airport, Report No. IA NAP-70-1, March 1970).

[215] Batten v. United States, 306 F. 2d 580 (10th Cir. 1962), cert. denied, 37 U.S. 955 (1963), rehearing denied, 372 U.S. 925 (1963).

[216] 11 Avi. 17, 642 (Cal. Super. Ct. 1970).

[217] Cunliffe v. County of Monroe, 63 Misc. 2d 62, 65; 312 N.Y.S. 2d 879, 883 (1970).

[218] 64 Wash. 2d 309, 319; 391 P. 2d 540, 547 (1964).

[219] Lesser, supra note 46, at 194-195.

[220] Id. at 195.

[221] See Environmental Law Reporter, 1 ELR 65068 of 2-71. Case cited as Aaron v. City of Los Angeles (Superior Ct. Cty. of Los Angeles, 1970). See also 1 ELR 20196, 4, 5 - 71 which cites the case as Aaron v. City of Los Angeles, No. 837 799 (Super. Ct. Los Angeles, February 5, 1970), with the full opinion.

[222] 1 ELR 65068 at 65069.

[223] Lesser, supra note 46, at 194.

[224] 1 ELR 65068 at 65069.

Lesser, supra note 46, at 195.

[225] Lesser, supra note 46, at 196.

[226] Id. at 201.

[227] Report of the Jet Aircraft Noise Panel, supra note 138, at 141.

[228] This Summary on "Aircraft Noise: Reduction of Noise at the Source," was appended to a letter of June 25, 1968, to Senator Monroney, Chairman, Subcommittee on Aviation, Committee on Commerce, U.S. Senate, from the Airport Operators Council International, Inc.,

at pages 82-86 of Hearing Proceedings on "Aircraft Noise and Abatement Regulation" of June 17, 1968 (Serial No. 90-72)(Hereinafter cited as Summary).

[229] Id. at 82.

[230] Ibid.

[231] Ibid.

The International Civil Aviation Organization is also moving toward some standard of international uniformity with respect to aircraft noise abatement to avoid similar competitive problems. Meynell in "International Regulation of Aircraft Noise," SAE/DOT Conference on Aircraft and the Environment, P-37, 2 vols., Society of Automotive Engineers, Inc., New York 10001, 1971, Part 1, at 172, states:

> International uniformity is needed not only to protect the noise-suffering public throughout the world, but also because, without it, those manufacturers and airlines which carried out the greatest amount of quieting would be at a commercial disadvantage vis-a-vis their competitors becuase they had increased greater costs. Operators of aircraft of a country a condition of whose registry was the adoption of significantly more severe and costly standards of quietness would also be penalized if other operators in competition with them faced less severe requirements.

[232] Summary, supra note 228, at 82.

[233] Id. at 83.

[234] Ibid.

[235] Ibid.

[236] Id. at 84.

[237] Ibid.

[238] Id. at 85.

[239] Ibid.

[240] Ibid.

[241] *Ibid*.

The letter of Mr. Robert F. Allnut, Assistant Administrator for Legislative Affairs, NASA, to the Chairman, Committee on Interstate and Foreign Commerce, House of Representatives, of November 21, 1967, relative to H.R. 3400, provides some background on this point:

> In his March 2, 1966, message to Congress, recommending the establishment of a Department of Transportation (H.Doc. 399), the President recognized the noise problem and its urgency.
>
> He said, in part:
>
> "The jet age has brought progress and prosperity in our air transportation system. Modern jets can carry passengers and freight across a continent at speeds close to that of sound."
>
> "Yet this progress has created special problems of its own. Aircraft noise is a growing source of annoyance and concern to the thousands of citizens who live near many of our large airports. As more of our airports begin to accommodate jets and as the volume of air travel expands, the problem will take on added dimension."
>
> "There are no simple or swift solutions. But it is clear that we must embark now on a concerted effort to alleviate the problems of aircraft noise. To this end, I am today directing the President's science adviser to work with the Administrators of the Federal Aviation Agency and the National Aeronautics and Space Administration, and the Secretaries of Commerce and of Housing and Urban Development, to frame an action program to attack this problem."
>
> "I am asking this group to -
>
> > Study the development of noise standards and the compatible uses of land near airports;
> >
> > Consult with local communities and industry; and
> >
> > Recommend legislative or administrative actions needed to move ahead in this area."

The President's action was in part based on recommendations, also published in March 1966, in a report of the Jet Aircraft Noise Panel of the Office of Science and Technology entitled "Alleviation of Jet Aircraft Noise Near Airports." That report, which resulted from extended study of the problem, contains information on many aspects of the problem.

Following through on the President's request and using the above-mentioned report as a starting point for an integrated study of the problem, first the Director of the Office of Science and Technology and more recently the Secretary of the Department of Transportation taken leadership in the study of aircraft noise and its related problems. The National Aeronautics and Space Administration and other interested and affected executive agencies are participating in that work. Report No. 1463, supra note 118, at 19.

[242] Summary, supra note 228, at 86.

[243] In recent years an industry-wide organization, the National Aircraft Noise Abatement Council, has been engaged in developing a broad program of studies and research aimed at reduction of jet aircraft noise. However, a major difficulty in developing practical approaches has been inhibition of initiative by any one of the several groups involved because of conflicting economic and other interests. For example, it is difficult for engine manufacturers to initiate costly engine modifications because airline operators claim they cannot afford to pay for them; for economic reasons, some airline operators insist on maximizing the payload to be carried with a specific engine/airframe combination in spite of resulting take-off noise levels objectionable to communities near the airports; some local governments in communities bordering on airports are not willing to accept the economic consequences of zoning constraints or the exercise of eminent domain and argue that aircraft noise should rather be reduced by improving engines, off-loading aircraft and steeper take-offs and landings; and many affected residents object to being uprooted, and having to give up long-time personal and community associations. Note 227 supra, at 4.

[244] Hill, James D., "Liability for Aircraft Noise - The Aftermath of Causby and Griggs," 19 U. Miami L. Rev. 1, 26 (1964). In support of this observation the author quotes a statement by Senator Monroney, Chairman of the Senate Aviation Subcommittee, to the effect that grants for "avigation easements" were not authorized the Federal Airport Act, 60 Stat. 170 (1946), as amended, 49 U.S.C. §1101 (Supp. V. 1961):

> (T)he law specifically provides that no funds will be allocated to projects which are not directly related to safety (such as runways, high intensity runway lighting, and runway distance markers). Consequently, the Agency is precluded by law from allocating Federal funds for the acquisition of land for the purpose of noise abatement.

[245] Id. at 27.

[246] Note 142, supra, at 6.

[247] Id. at 7.

[248] Ibid.

[249] Hill, supra note 244, at 31.

[250] See Statement by John R. Wiley, Director of Aviation, The Port of New York Authority, before the Subcommittee on Aviation of the Senate Commerce Committee, of July 13, 1971. See also Statement of the Airport Operators Council International at the same hearing which asserts that: "On the basis of a recent survey of noise litigation now pending, A.O.C.I. estimates the amound claimed against operators of local public airports in noise suits in excess of $3.8 billion." (Id. at 13.)

[251] Federal Aviation Act of 1958 §611, 49 U.S.C. 1431 (Supp. IV, 1968).

[252] Report 1353, supra note 142, at 5.

[253] 14 C.F.R. §36, et seq.

[254] See Lesser, supra note 46, at 204.

[255] 14 C.F.R §36.5. FAA has acknowledged that its aircraft noise standards so far promulgated are based on economic reasonableness and technological practicability as contrasted with social

acceptability. (U.S. Federal Aviation Administration, "Adoption of Noise Type Certification Standards and Procedures," Federal Register, XXXIV, No. 221, November 18, 1969, 18355-18379 [as amended] "Part 36 - Noise Standards: Aircraft Type Certification corrections ," Federal Register, XXXIV, No. 229, November 29, 1969, Appendix B, "Aircraft Noise Evaluation under section 36.103." See at 18356.)

The language of Public Law 90-411 is to be contrasted with the Clean Air Amendments of 1970 as to the establishment of standards. The Clean Air Amendments provide for the adoption of national air quality standards and specifically reject the test of technological practicability and economic reasonableness. "The concept is of public health, and the standards are uncompromisable in that connection." (U.S. Congress, Senate, remarks by Senator Edmund S. Muskie, 91st Cong., 2d Sess., September 22, 1970, Congressional Record, S. 16239 [daily ed.].

[256] Federal Aviation Act of 1958, §101(24), 49 U.S.C. §1304 (1964).

[257] Lesser, supra note 46, at 198.

[258] Port of New York Authority v. Eastern Airlines 259 F. Supp. 142 (E.D.N.Y., 1966).

[259] Lesser, supra note 46, at 199.

[260] Lesser reports two recent actions which also give airport operators cause for considerable concern:

> (I)n July, 1970, the New York Attorney General sued it (Port of New York Authority) together with 58 foreign and domestic airlines who use Kennedy and La Guardia Airports. (State of New York v. Port of New York Authority - Index No. 6981/70) The Attorney General claims that defendants' activities have created excessive and intolerable noise conditions. He is seeking to have the Authority and the airlines enjoined from injuring and endangering "the comfort, repose and health" of the affected citizens and is asking, in effect, that the Authority be compelled to adopt a more stringent standard than its 112 PNdb jet regulation and that the airlines be required to obey the new standard.

Lesser, Id. at 199.

> (T)he City of Boston has recently commenced a federal court action against the Massachusetts Port Authority and nineteen airlines using Logan International Airport for noise pollution damages totaling $10.2 million. Mayor White of Boston said that if the suit is successful the damages would be used in part to help soundproof fifteen schools. A city survey, he said, disclosed that instruction at these schools had to be interrupted every six minutes because of aircraft noise.
>
> Lesser, Id. at 205, citing N.Y.L.J., September 10, 1970, p. 1, col. 6.

[261] Lesser, supra note 46, at 205, reports one legal action which undertakes to circumvent the Griggs doctrine by shifting liability to the airlines and the aircraft engine manufacturers. He cites Greater Westchester Homeowners' Association v. City of Los Angeles (Cal. Super. Ct. No. 931, 989, April 21, 1970). However, the trial court dismissed the complaint for reason of not establishing "standing" and on appeal by the Association, this decision was affirmed without comment on the City of Los Angeles' cross claims seeking to pass liability to the airlines and aircraft manufacturers. See 13 Cal. App. 3d 485 (1970).

[262] Wiley, supra note 250, at 2.

The FAA is currently working on new regulations that will set specific limits on noise abatement procedures, defining minimum safe operational performance levels below which operational flight will not be permitted for noise abatement purposes. See Pulling, "The Federal Regulation of Aircraft Noise," SAE/DOT Conference on Aircraft and the Environment, P-37, 2 vols., Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001, 1971, Part 1, at 178.

[263] Ibid.

[264] Id. at 3.

[265] See Testimony of Burt F. Raynes, Chairman and Chief Executive of Rohr Corporation, before the Senate Subcommittee on Aviation of the Senate Committee on Commerce, July 13, 1971, who apparently favors retrofit; but see Statement of Secor D. Browne, Chairman of the Civil Aeronautics Board before the Subcommittee on Aviation of the Senate Committee on Commerce of July 13, 1971, who stated: "I do not believe that the retrofit program is worth the cost to the public." Id. at 4.

See also Aviation Week & Space Technology, April 26, 1971, p. 26, and relevant comments from DOT/NASA CARD Study Report, note 283, infra.

[266] Wiley, supra note 250, at 6.

[267] Id. at 8.

[268] 40 Law Week 2029, July 20, 1971. Mass Sup. Jud. Ct.: Opinion of the Justices, June 25, 1971.

[269] Mass. Senate No. 1161, as amended by the House (1971).

[270] Opinion of the Justices, supra note 268, at 1.

[271] Id. at 3.

[272] Id. at 4.

[273] Ibid.

[274] Ibid.

[275] Id. at 5.

[276] Ibid.

[277] Id. at 6.

[278] Ibid.

[279] Id. at 6-7. The Court notes that this policy is also written into the regulations (14 C.F.R. §36.5).

[280] Id. at 9-10.

[281] Id. at 10-11.

[282] Id. at 11.

[283] Joint DOT/NASA Civil Aviation Research and Development Policy Study Report (CARD Study) of March, 1971, at 5-3 (DOT TST - 10-4) (NASA SP-265) (Hereinafter referred to as CARD Study Report).

To the effect that there is a trend toward increased aircraft noise "exposure" (as defined by NEF methodology) and that increases in airline passenger traffic and increases in aircraft noise exposure around airports are essentially proportional, see Paullin, "Capacity and Noise Relationships for Major Hub Airports," 58 Proceedings of the IEEE, No. 3 (March, 1970).

[284] CARD Study Report, supra note 283, at 5-3, 5-4.

[285] Id. at 5-4.

[286] See New York Times, July 11, 1971, p. 1, col. 3, "New Jetports Held Up By Protest Movements."

[287] Ibid.

[288] See New York Times, April 4, 1971, p. 66, col. 8.

[289] Among numerous articles touching on this topic see Washington Post Editorial of March 19, 1971, §A, p. 14, col. 1; New York Times, March 21, 1971, p. 1, col. 1; and New York Times, March 28, 1971, §4, p. 1, col. 5. Numerous analyses of the sonic boom problem and how it might be managed were made prior to the Congressional decision to terminate the American version of the SST. See, for example, Baxter, William F., "The SST: From Watts to Harlem in Two Hours," 21 Stan. L. Rev. 1 (1968), which discusses the response of the legal system to this problem. The introduction states: "Some system of rules and procedures will develop that will allocate the social cost of the boom phenomenon between those exposed to booms and the users and owners of supersonic air transport." Ibid.

[290] See CARD Study Report, supra note 283, at 5-7.

[291] See Statement of Airport Operators Council International before the Subcommittee on Aviation of the Senate Committee on Commerce of July 13, 1971, p. 11-13.

[292] CARD Study Report, supra note 283, at 5-7.

[293] Id. at 5-6. "If engine noise is not reduced, it would cost roughly $17 billion to purchase the approximately 1300 square miles affected by noise levels of 30 Noise Exposure Factor (NEF) or greater. On the other hand, if engine noise could be reduced by 10 dB, the land exposed to 30 NEF or greater would cost an estimated $1.6 billion."

[294] Special Report, British Record No. 5, May 19, 1971, "Pollution Control in Britain" at 2.

[295] New York Times Editorial, July 24, 1971, p. 24, col. 2. A more recent story in the Washington Post, September 11, 1971, p. D 46, col. 1, states that the City is spending almost $300 million to "eradicate" 1,994 private homes spread over 400 acres on the outskirts of Los Angeles International Airport.

[296] Report of the Committee on Public Engineering Policy, National Academy of Engineering, July 1969, at 92-94.

[297] Id. at 95.

[298] CARD Study Report, supra note 283, at 5-9.

[299] Id. at 5-8.

[300] Vol. I: Conclusions, Recommendations, Summary, at 2.

[301] Ibid.

[302] Ibid.

[303] Id. at 20.

[304] Id. at 2.

[305] Ibid.

[306] Ibid.

[307] Note 227, supra, at 7.

[308] Interview with Mr. Joseph Crotti, Director of Aeronautics, State of California, August 9, 1971.

[309] Fadem and Berger, "A Noisy Airport is a Damned Nuisance," 3 SW. U. L. Rev. 39, 86-87 (1971).

[310] "Port Noise Complaint," supra note 151, at 117.

[311] Katz, supra note 8, at 21.

[312] Id. at 23.

[313] 174 N.E. 2d 754 (1961).

[314] Id. at 755.

[315] Ibid.

[316] Deaconess Hospital v. Washington State Highway Commission 403 P. 2d 54 (1965).

[317] Id. at 56.

[318] Id. at 59.

[319] Id. at 71-72. Under other circumstances, however, a hospital has been successful in maintaining an action for nuisance against noise making sources. In Clinic & Hospital v. McConnell 236 S.W. 2d 384 (1951) (23 ALR 2d 1278) the plaintiff sought to enjoin the operation of a loud speaker in the front window of a music store diagonally across the street from which music was continuously broadcast, sometimes until 11:00 p.m. The hospital was established long before the music store. The sound was clearly audible in the hospital above ambient street noise. Evidence showed that the sound had an injurious effect on some patients. The court considered interference with the operation of the hospital to be "relatively serious" and determined that the defendants should be perpetually enjoined. The general principle was stated by the court as follows:

> (A) business which is lawful in itself may become a nuisance where it is not operated in a fair and reasonable way with regard to the rights of others in the use and enjoyment of their property....(T)he question is one of reasonableness. What is...an unreasonable invasion of another's use and enjoyment of his property cannot be determined by exact rules, but must necessarily depend upon the circumstances of each case, such as locality and the character of the surroundings, the nature, utility and social value of the use, the extent and nature of the harm involved, the nature, utility and social value of the use of enjoyment invaded, and the like. See Restatement of Torts, Vol. IV, §822 and §831, at 214, 265 (23 ALR 2d 1287).

[320] For discussion of particular noise sources as a nuisance see:

Annot., 2 ALR 3d 1372 (Truck Terminal)
Annot., 4 ALR 3d 902 (Power Plant)
Annot., 5 ALR 3d 989 (Tavern)
Annot., 26 ALR 3d 661 (Shooting Range)
Annot., 18 ALR 2d 1035 (Stockyard)
Annot., 39 ALR 2d 1007 (Undertaker)

Annot., 44 ALR 2d 1394 (Dance Hall)
Annot., 26 ALR 2d 653 (Auto Wrecking Yard)
Annot., 44 ALR 2d 1322 (Oil Refinery)
Annot., 91 ALR 2d 572 (Drive-In Restaurant)
Annot., 92 ALR 2d 977 (Dairy and Creamery)
Annot., 93 ALR 2d 1171 (Drive-In Movie)
Annot., 23 ALR 2d 1289 (Business Premises)

Also see recent cases:

Davoust v. Mitchell, 257 N.E. 2d 332 (Ind. 1970)(Dog Pen)
Johnson v. Mount Ogden Enterprises, Inc., 23 Utah 2d 169, 460 P. 2d 333 (1969) (Drive-In Theater)
Severt et. al v. Beckkley Coals, Inc., 170 S.E. 2d 577 (Sp. Ct. W. Va. 1969) (Coal Mine)
Corporation of the Presiding Bishop of the Church of the Latter Day Saints v. Ashton, 92 Idaho 571, 448 P. 2d 185 (1968)(Church Activities, Baseball Games)
Smith v. Western Wayne County Conservation Association, 380 Mich 526, 158 N.W. 2d 463 (1968)(Gun Club)
Kasala v. Kalispell Pee Wee Baseball League, 151 Mont. 109, 439 P. 2d 65 (1968)(Baseball Game)
City of Fredericktown v. Osborne, 429 S.W. 2d 17 (Mo. App. 1968)(Keeping Dogs)
Bates v. Quality Ready Mix, Inc., 261 Ia 696, 154 N.W. 2d 852 (1967)(Cement Factory)
Sanders v. Roselawn Memorial Gardens, 152 W. Va. 91, 159 S.E. 2d 784 (1968) (Cemetery).

[321] Campbell v. Arkansas State Highway Commission, 38 S.W. 2d 753, 754 (1931).

In the case of Arkansas State Highway Commission v. McNeill, 381 S.W. 2d 425 (1964), the Arkansas Court cited the Campbell case and again rejected claims of reduced property value due to noise, dust fumes, glaring lights, and vibration from highways, saying that such damage which is suffered by the public in general, even though to a degree it may involve more inconvenience to particular landowners, is not compensable. The McNeill case involved an attempt by property owners to enjoin the Highway Commission from constructing an interchange near their homes unless it filed bond to secure damages that might be suffered as a result of the construction. See the subsequent case, also citing the Campbell case of Arkansas State Highway Commission v. Kesner, 388 S.W. 2d 905 (1965) which was a similar situation to McNeill. The Court said that where there is no actual taking, the claimant "must suffer direct and substantial damage peculiar to himself, and not suffered by other members of the public, and this is true, even though he may be actually more inconvenienced than the public in general." Id. at 909.

It is of interest to note that in a 1963 Wyoming case in inverse condemnation where it was claimed that lights from automobiles on a new highway rendered certain property undesirable for use as a theatre (property which had not been used within two years as an outdoor theatre prior to opening of traffic), the Supreme Court of that State held that the claim was too speculative to support an award for damages. The Court stated, inter alia: "Unlike smoke, gases, dust, and noxious odors, or even disturbing noises, light is not inherently harmful and it does not unreasonably or substantially interfere with the ordinary use and enjoyment of property." Sheridan Drive-In Theatre, Inc. v. State of Wyoming, 384 P. 2d 597, 600 (1963).

[322] 357 P. 2d 451 (1960).

[323] Id. at 453.

[324] Id. at 454.

[325] 48 Cal. Rptr. 672 (1966).

[326] Id. at 677.

[327] 72 Cal. Rptr. 240 (1968).

[328] Id. at 242.

[329] Ibid.

[330] Id. at 244.

[331] Ibid.

[332] The Louisiana Supreme Court held in Reymond v. Department of Highways, 231 So. 2d 375 (1970) that in a suit for damages for diminution of property value resulting from highway construction that the plaintiff could not recover for diminution in value caused by impaired accessibility, discomfort, and disturbance, but that she could recover for diminution in market value of her residence by reason of structural damages attributable to vibration from pile-driving activity during highway construction.

See also, Northcutt v. State Road Department of Florida, 209 S.E. 2d 710 (1968) discussed infra this subsection.

[333] 137 S.E. 2d 343 (1964).

[334] Id. at 344.

[335] Id. at 347.

[336] 308 F. Supp. 777 (1970).

[337] Id. at 783.

[338] Id. at 782-783.

[339] Id. at 785. The Court found no compensable damages for "substantial loss of access," or for "loss from change of grade," or for "loss of parking," or for "loss of business occasioned by the project."

[340] Commonwealth v. Elizabethtown Amusements, Inc., 367 S.W. 2d 449 (1963).

[341] Id. at 452. On a related point the Court stated:

> The purpose of the testimony was to show that there would be benefits to the theatre operation offsetting any possible resulting damages from additional noise. A sufficient answer to this contention is that under the law in force at the time this case was tried, benefits could not be set off against resulting damage. Id. at 453.

A subsequent Kentucky case, Commonwealth, Department of Highways v. Carson, 398 S.W. 2d 706 (1966) reaffirmed the Elizabethtown Amusements, Inc. doctrine, stating that "The second error charged concerns the introduction of evidence of noise from a new highway. We have held such evidence to be competent." Id. at 707.

[342] 149 So. 2d 851 (1963). Mississippi is a "taken or damaged for public use" state. Id. at 855.

[343] Id. at 855. The Court also observed that:

> Where part of a tract is physically appropriated, the condemnor should pay severance damages, i.e., the

> depreciation in the fair market value of the remaining area...This principle has been almost universally applied in other states, and is in accord with the decisions in this state. Id. at 855-856.

[344] 148 S.E. 2d 747 (1966).

[345] Id. at 748-749. The Court also cited 4 Nichols on Eminent Domain, §14.1, at 743:

> A distinction must be drawn between consequential damages to a remainder area where a part of a tract is physically appropriated and consequential damages to a tract no part of which is physically appropriated. In the latter case the damage must be peculiar to such land and not be such as is suffered in common with the general public. In the former case it matters not that the injury is suffered in common with the general public.

[346] Pierpont Inn, Inc. v. State of California, 68 Cal. Rptr. 235 243 (1968).

[347] Ibid.

[348] 366 S.W. 2d 420 (1963).

[349] Id. at 421. The Turk decision quoted with approval from Wilson v. Kansas City, 162 S.W. 2d 802, 805 (1942) on the "more general subject" that "traffic, great or small, is merely an incident of streets and highways and cannot be considered either as an element of damages or of benefits."

[350] 388 S.W. 2d 522 (1965).

[351] Id. at 525.

[352] Ibid.

[353] 402 S.W. 2d 336, 340 (1966).

[354] 239 N.E. 2d 708 (1968).

[355] Id. at 710.

[356] Ibid.

[357] *Ibid.*

[358] *Ibid.*

[359] *Id.* at 711.

[360] *Ibid.*

[361] *Id.* at 712.

[362] *Ibid.*

[363] *Ibid.*

[364] 302 N.Y. Supp. 2d 898 (1969).

[365] *Id.* at 904.

[366] 318 N.Y. Supp. 2d 57 (1971).

[367] *Id.* at 61.

See also *Valicenti* v. *State*, 312 N.Y.S. 93, 95 (1970):

> Far from the "entirely secluded, quiet and peaceful" setting pictured in *Dennison*,...claimants' Jericho Turnpike realty has suffered essentially no loss of privacy apart from the noise factor and to award damages for increased traffic noise in this instance would be to do so in the impermissible "quite unrestricted form." A comment on the *Dennison* case appears in 10 *Wm. & Mary L. Rev*. 767 (1969) wherein the writer states that *Dennison* is contrary to "the general tendency of the law" and that it must be read in light of the particular uniqueness of the property there involved. *Id.* at 769.

[368] 209 So. 2d 710 (1968).

[369] *Id.* at 710-711.

[370] *Id.* at 711. *City of Jacksonville* v. *Schomann*, 199 So. 2d 727 (1st D.C.A. Fla. 1967), *cert. denied* 204 So. 2d 327 (Fla. 1967) *cert. denied*, 390 U.S. 981 (1968).

[371] Honeywell, "Eminent Domain: Inverse Condemnation - What Constitutes a Taking?" 21 *U. Fla. L. Rev*. 257, 259 (1968).

[372] Id. at 259-260.

[373] 209 So. 2d 710, 711.

[374] Id. at 712.

[375] Ibid.

[376] Honeywell, supra note 370, at 258.

[377] Ibid.

[378] Id. at 261.

[379] Id. at 262. A recent decision in a Superior Court of New Jersey held in favor of a citizens' group which filed suit to enjoin a planned widening of the New Jersey Turnpike. Plaintiffs alleged that such widening would increase air and noise pollution problems to a level that would prove hazardous to health. Counsel for the plaintiffs was quoted as stating that this was the "first time a highway project has been enjoined in New Jersey and the first time such a project was halted anywhere for environmental reasons, as far as we can determine." New York Times, September 5, 1971, p. 26, col. 3.

In another recent New Jersey case, an award of $164,119 was made by a Superior Court judge in Elizabeth, New Jersey to the local Board of Education which had alleged damages caused by noise interference with the conduct of classes at the William F. Halloran School after Interstate Highway 278 was constructed next to it. In 1965 the Highway Department condemned 2,034 square feet of the school's property for the highway for which the School Board was awarded $3,700. The noise level increased from about 60 decibels (dB) before construction to approximately 80 dB after construction. Interference with normal speech commences at the 65-70 dB level. $94,350 of the judgment reflected the cost of air-conditioning the school and $51,000 the cost of sealing the windows. An expert witness in the case, Lewis S. Goodfriend, noted the relationship of speed to noise, saying: "You get much more noise with traffic moving at 50 miles an hour than at, say, 35." The state will appeal the decision. See the New York Times, October 3, 1971, p. 66, col. 1.

[380] Lewin, supra note 213, at 55.

[381] Id. at 57-58.

[382] Id. at 58.

[383] _Ibid_.

[384] _Id_. at 59.

[385] _Id_. at 60-61.

[386] 172 S.E. 2d 42 (1970).

[387] _Id_. at 48.

[388] _Ibid_.

[389] _Id_. at 47-48.

[390] Lewin, _supra_ note 213, at 61.

[391] Greenwald, _supra_ note 1, at 5-7.

[392] In _Goldblatt_ v. _Hempstead_, 369 U.S. 590 (1962), the Supreme Court in construing an ordinance regulating sand and gravel excavation pits advanced the following general test:

> The ordinance in question was passed as a safety measure...To evaluate its reasonableness we therefore need to know such things as the nature of the menace against which it will protect, the availability and effectiveness of other less drastic protective steps, and the loss which appellants will suffer from the imposition of the ordinance. _Id_. at 593.

The authors Lockhart, Kamisar, and Choper of _Constitutional Law: Cases-Comments-Questions_ (1970), ask re this test: "What is the significance of the court's reverting to speak in terms of the 'reasonableness' of the exercise of the 'police power', in view of its long abstinence from such criteria in the due process cases of economic regulation?" _Id_. at 491.

[393] 334 U.S. 558 (1948).

[394] _Id_. at 560-561.

[395] _Id_. at 561-562.

[396] 336 U.S. 77 (1949).

[397] _Id_. at 79.

[398] Id. at 79.

[399] Id. at 86-87.

[400] Id. at 88-89.

[401] Lewin, supra note 213, at 65. In the case of Maldonado v. County of Monterey, 330 F. Supp. 1282 (1971), the U.S. District Court (N.D. Cal.), considered the constitutionality of a city ordinance (An Ordinance Relating to Noise on Highways) which prohibited "Loud and Raucous Noise" and which also defined the meaning of this standard. An action was brought by labor organizers seeking a preliminary injunction against enforcement of the ordinance. The labor organizers were engaged in a strike and asserted that the only means by which they could effectively communicate with the workers in the fields was through the use of sound amplification devices on cars or trucks. The Court noting that "Loud and Raucous Noise" was defined by the ordinance as "(3) The human voice or any record or recording thereof when amplified by any device whether electrical or mechanical or otherwise to such an extent as to cause it to carry on to private property or to be heard by others using the public highways or public thoroughfares," held that the ordinance was unconstitutional under the First Amendment since it had the effect of prohibiting any amplification of the human voice above a normal speaking level from all public highways and thoroughfares at any time of day or night, stating:

> The Monterey ordinance is not drawn with narrow specificity, nor does it reasonably regulate the use of loudspeaking devices. It flatly prohibits their use on public roads. Rather than limiting the decibel-level, it effectively bars any sound louder than the normal human voice. Rather than restricting the use of such equipment to certain periods of the day, it restrains such use at any time. Id. at 1286.

[402] In a different context, it has been held that denial of a permit to construct a church for reason of resulting noise and other inconvenience to residential neighbors has been held to be insufficient. See cases discussed in 74 ALR 2d 394.

[403] Lewin, supra note 213, at 67.

See also Kramon, supra note 4, at 93.

[404] Lewin, supra note 213, at 67-69. However, in the 1971 Supreme Court case of Coates v. City of Cincinnati, 91 S. Ct. 1686 (1971), the majority held a city ordinance invalid which made it a criminal offense

for "three or more persons to assemble...on any of the sidewalks...and there conduct themselves in a manner annoying to persons passing by..." The Ohio Supreme Court had affirmed convictions under the ordinance saying that the word "annoying" is widely used and well understood. But the Supreme Court majority stated: "In our opinion this ordinance is unconstitutionally vague because it subjects the excercise of the right of assembly to an unascertainable standard, and unconstitutionally broad because it authorizes the punishment of constitutionally protected conduct." Id. at 1688.

[405] Lewin, supra note 213 at 75-76.

[406] See Kramon, supra note 4, at 92-94 to this effect.

[407] 122 N.E. 2d 28 (1954).

[408] Id. at 29.

[409] Id. at 30.

[410] 164 S.E. 2d 607 (1968).

[411] Id. at 608.

[412] Id. at 610.

[413] See People v. Byron, 215 N.E. 2d 345 (1966)("excessive or unusual noise"); Smith v. Peterson, 280 P. 2d 522 (1955)("excessive or unusual noise"); Anderson v. State of Texas, 271 S.W. 2d 814 (1954) ("excessive and unusual noise").

[414] Del. Super., 270 A. 2d 535 (1970).

[415] Id. at 536.

[416] Ibid.

[417] City of Richmond Heights v. Shackelford, St. Louis Court of Appeals, 446 S.W. 2d 179 (1969). (Held city ordinance not in conflict with State law.)

[418] City of Madison v. Reynolds, 180 N.W. 2d 7 (1970). This decision involved a complicated interpretation of State statutes, the court deciding that the Madison ordinance conflicted with State provision for "free use of all highways"...with certain exceptions.

[419] A Guide to the New York City Noise Control Code, New York City Environmental Protection Administration, 1971.

[420] 215 N.E. 2d 345 (1966).

[421] *Id*. at 346. §375.

[422] *Id*. at 347.

[423] *Id*. at 348.

[424] *Ibid*.

[425] *Ibid*. See *Smith* v. *Peterson*, 280 P. 2d 522 (1955), 49 ALR 2d 1194. See also Annotation: Public regulation requiring mufflers or similar noise-preventing devices on motor vehicles, aircraft, or boats. 49 ALR 2d 1194.

[426] New York City Environmental Protection Administration, Jerome Kretchmer, Administrator (1971).

[427] *Id*. at 5-6.

[428] Compiled for the Attorney General's Environmental Task Forces from Research by Deputy Attorneys General Jan Stevens, Gregory Taylor, Nicholas Yost, and former Deputy Attorney General David Stanton (March, 1971).

[429] Program brochure dated January 1, 1970.

[430] *Id*. at 3 of Reprint of talk by Randall L. Hurlburt of April 1, 1971, on "Noise Control Experience in Local Government." Attention is invited, however, to a memorandum from the Deputy Attorney General Nicholas C. Yost, to Members of the Noise Subcommittee, Los Angeles Environmental Task Force, dated May 4, 1971, re: Jurisdiction Over Aircraft and Vehicular Noise, which states in part:

> However, as a general proposition state law preempts local law as it applies on highways. The state law may be enforced by both state and local agencies. In the case of vehicular noise, the California Highway Patrol's regulations concerning methods of noise measurement must be used. *Local governments may regulate off-highway noise*. (Emphasis supplied.)

[431] From material supplied by California officials relating to new legislative proposals concerning vehicular noise. The proposed new §23131 (SB. 693) will presumably meet opposition from those who think local jurisdictions might use this authority to devise "noise traps" for unwary motorists.

[432] Stat. Ann. Ch. 95 1/2, §12-121(a)(Smith-Hurd, 1971).

[433] §27-353(a).

[434] Chapter 17, Art. IV, §7.

[435] Environmental Protection Act, Public Act 76-2429, §25, Title VI.

[436] Chicago City Ordinances, Chapter 36, is illustrative of existing "Zones of Quiet" municipal provisions.

[437] Chapter 71-36, Air and Water Pollution Control - Noise, §403.061 amended.

[438] Act 147, §322.

[439] HDTMA News Release of July 28, 1971.

[440] *Id.* at 4.

[441] *Id.* at 5.

[442] *Id.* at 10.

[443] *Id.* at 11.

[444] 359 U.S. 520 (1959).

[445] *Id.* at 523-524.

[446] *Id.* at 527.

[447] *Id.* at 528.

[448] *Id.* at 530.

[449] *Id.* at 529-530.

[450] 74 Cal. Rptr. 222 (1968).

[451] Id. at 222-223.

[452] Id. at 223.

[453] Ibid.

[454] Id. at 224.

[455] One well known study report was prepared by the Committee on Environmental Quality of the Federal Council for Science and Technology in 1968, Noise - Sound Without Value (September 1968).

[456] The Noise Around Us, supra note 7, at 145-146.

A useful article on this general topic is that of Edelman, "Federal Air and Water Control: The Application of Commerce Power to Abate Interstate and Intrastate Pollution," 33 Geo. Wash. L. Rev. 1067 (1965). Edelman states in part:

> Section 5 of the Clean Air Act does not evidence a congressional intention to exceed its constitutional authority by regulating matters of strictly internal concern to the state. Rather, the section must be taken as reflecting congressional determination that any air pollution of such magnitude as to endanger the health or welfare of persons in the state in which it originates is likely to and, indeed, does affect interstate commerce. The pollution which Congress wished to regulate, that which endangers "the health or welfare of persons only in the State" in which such pollution originates, clearly reaches persons and goods in commerce within that state.
>
> When Congress has acted to regulate activities which appear intrastate in character but which, taken in total effect will probably have an adverse effect on commerce, the Court has held that it "will certainly not substitute its judgment for that of Congress unless the relation of the subject to interstate commerce and its effect upon it are clearly nonexistent." (Citing Stafford v. Wallace, 258, U.S. 495, 521 (1922).) Id. at 1082.

[457] See "'Good Guy' Stalks Polluters," Washington Post, July 25, 1971, p. E1, col. 1 and p. E3, col. 1.

[458] Ibid.

[459] Abraham and Loder, "The Supreme Court and the Preemption Question," 53 Ky. L. Jou. 289 (1965).

[460] Id. at 335.

[461] Id. at 334.

[462] Id. at 320.

[463] Id. at 329.

[464] Id. at 334.

[465] Id. at 333.

[466] Concerning the "plenary power (of the Congress) to regulate the radio industry" see WOKO, Inc. v. FCC, 153 F. 2d 623, 628-629 (1946), affir'm in FCC v. WOKO, Inc., 329 U.S. 223 (1946).

[467] Sentinel Broadcasting Corp., 8 F.C.C. 140, 147 (1940). See Chapter 3 of Network Broadcasting (1958).

[468] 320 F. Supp. 172 (1970). For a discussion of this general problem area see Note, "Environmental Control: Higher State Standards and the Question of Preemption," 55 Corn. L. Rev. 846 (1970).

[469] 320 F. Supp. at 176.

[470] Id. at 178.

[471] Ibid.

[472] Ibid.

[473] Docketed for appeal, Feb. 22, 1971, 8th Circuit, #71-1093. The Wall Street Journal of September 9, 1971, p. 12, col. 2, reported that the 8th Circuit Court of Appeals had sustained the District Court decision and that a spokesman for the Minnesota Pollution Control Agency had indicated that the decision "may be appealed to the Supreme Court."

[474] 320 F. Supp. 172, 173 (1970).

[475] Lee Loevinger, "States Rights in Radiation Control," Science, at 790, 792 (February 26, 1971).

[476] This proposition is another restatement of the basic doctrine of the Cooley case noted in subsection 2.3.1 supra. The recent case of Chrysler Corp. v. Tofany, 419 F. 2d 499 (1969), the court considered whether the National Traffic and Motor Vehicle Safety Act of 1966, §103(d), 15 U.S.C.A. §1392(d) precluded the Vermont Commissioner of Motor Vehicles and the New York Commissioner of the Department of Motor Vehicles from approving sale of manufacturers' automobiles equipped with special auxiliary headlamps. The opinion stated in part:

> The result which we have reached is consistent with recent authority on the general question of federal preemption. As the First Circuit pointed out, "it is well-settled that where the state's police power is involved, preemption will not be presumed..."
>
> We have already stated that the express purpose of the federal statute before us is the reduction of traffic accidents. Uniformity through national standards is of course desirable, but in these cases it is truly a secondary objective. What is perfectly safe on straight roads over the flat terrain of states such as Texas, Oklahoma, and Kansas may be very hazardous on hilly, winding roads in Vermont and New York. If traffic safety is furthered by a traditional type of state regulation under the police power, as we feel that it is here, a narrow construction of the preemptive effect of the federal Act and Standard No. 108 is required. Id. at 511.

3 THE EFFECTIVENESS OF EXISTING NOISE CONTROL REGULATION

3.1 THE EFFECTIVENESS OF EXISTING FEDERAL REGULATION

3.1.1 Aircraft Noise

A. Enforcement of Part 36 of the Federal Aviation Regulations

The FAA's type certification of commercial aircraft is the most significant Federal action to date in control of aircraft-related noise. Title 14, Part 36 of the Federal Aircraft Regulations provides noise standards applicable to aircraft wishing their type certification after December 1, 1969. Part 36 applies to turbojet aircraft and subsonic transport craft which are newly developed or for which there is proposed a change in design that could alter the noise emitted. The DC-10, the Boeing 747 (delivered on or after December 1, 1971), the Cessna Citation Model 500, and the L-1011 are required to comply with Appendix C of Part 36 of the FAR. The Boeing 747 was in the final stages of development when Part 36 became effective and as a result the FAA extended Boeing's deadline for compliance until December 1, 1971. Thus, the Boeing 747 delivered on or after December 1, 1971 will have to meet the noise specifications outlined in Appendix C, Part 36 of the FAR before receiving certification. The effectiveness of Part 36 will depend primarily on the make-up of the fleet flying at a given time in the future. For example, an ATA estimate of the number of jet aircraft expected to be flying in 1975 demonstrates that out of a fleet of 2110 aircraft only 393, or 18.6%, of the aircraft will have to have certification with regard to noise.[1] Therefore, a substantial noise problem will persist well beyond that date.

FAA has issued an advance notice of proposed rule-making (14 CFR Chapter 1) that would require retrofit of aircraft not regulated under Part 36 (see Section 1). This would require that the 81.4% of aircraft not under Part 36 be required by 1975 to have some noise abatement equipment and modification. There are substantial problems to be settled with regard to retrofit, including the technological feasibility and the problem of costs. These problems have been discussed elsewhere (Section 4).

Testing of compliance with Part 36 is done by the aircraft manufacturer and his contractor assigned to carry out the certification procedure. The FAA stipulates the type of instrumentation to be used[2] but does not provide the equipment. Instruments are necessary for (a) measuring noise emission, (b) stipulating weather conditions at time of testing, and (c) tracking the aircraft. A crew of 16 persons is necessary to man all the instruments: four to monitor the microphones, an acoustical engineer to measure acoustical specifications, a meteorologist to determine exact weather conditions, and ten technicians to man the three phototheodolites used to measure the three angles of the aircraft in flight.

Part 36 does not require that FAA officials should be present during certification procedures. According to Dr. John Waters of the Hydrospace Research Corporation (a typical contractor for this procedure) most Regional Representatives of FAA have no detailed familiarity with the measuring equipment so that even if an FAA official is present at certification, his effectiveness as a watchdog is limited.

Although Part 36 is well administered and enforced, it is new and limited in impact because of the small number of aircraft to which it applies. It is the only Federal rule at present controlling emission of aircraft noise at the source.

B. The Effectiveness of the National Environmental Policy Act and the Airport and Airways Development Act in Reducing Airport Noise

Section 102(2)(C) of the National Environmental Policy Act of 1969 (P.L. 91-190) requires Federal agencies to prepare detailed environmental statements for proposed projects that may significantly affect the environment. The FAA has submitted to CEQ 125 environmental impact statements as of August 10, 1971.[3] These statements must be prepared by the local sponsors of any major airport project that expects to receive Federal aid. A lengthening or a repaving of an existing runway is a common example of an airport project that would need a 102 statement before receiving Federal support.

Although excessive noise is an environmental impact, FAA's 102 statement guidelines do not require that a noise survey be conducted in considering the environmental impact of a proposed project.[4] Noise forecasts are sometimes conducted for a 102 impact statement if the proposed project appears to pose a potential noise problem. These noise forecasts are paper analyses involving a composite noise rating (CNR). The recently developed Noise Exposure Forecast (NEF), also developed by Bolt, Beranek and Newman, Inc., is a means of predicting a single number rating of the overall noise surrounding an airport. The major technical difference between the CNR and the NEF is that the latter employs EPNL and measures discrete tones and duration of noise, while the former empirically measures the PNL to forecast the noise exposure surrounding the airport.[5]

The Airport and Airways Development Act of 1970, Section 16(c)(3), requires consideration of the interests of communities near airports where there is a proposed airport development project that includes the development of a new airport location, the extension of a runway or development of a new runway. Section 16(c)(4) states that no major airport project shall be authorized for Federal aid unless the project provides "protection and enhancement of the natural resources and the quality of environment of the Nation."

No project found to have adverse effects will be authorized unless the Secretary finds (in writing) after a complete review, that no prudent or feasible alternative exists. Section 16(d) of the Act establishes a requirement that public hearings be held if requested so that there may be full consideration of the economic, social and environmental effects of a proposed airport project. (Repaving a runway, for example, would require a 102(2)(c) statement under the National Environmental Policy Act but would not fall under Section 16(d) of the Airport and Airways Development Act.)[6]

These hearings provide an open forum where community members and local sponsors have the opportunity to raise and respond to pertinent questions regarding the proposed project. The actual effectiveness of the public hearings to date has, however, been marginal as to noise problems. Examination of a series of 86 airport project proposals on file at the FAA (August 1971) revealed that in only 25 of these cases were public hearings held (29.2%).

These hearings for the most part were concerned with economic questions, not environmental ramifications of the proposed project. Although hostility to airports has become acute in some sections of the country, it is still the case that many communities not already affected by a major hub airport are more alert to potential economic benefits of new airports than to potential noise problems.

3.1.2 Highway Noise

The Federal Highway Administration has had to submit approximately 900 environmental impact statements in compliance with Section 102(2)(c) of the National Environmental Policy Act between February 1, 1971, and August 10, 1971.[7] These impact statements must reflect:

(1) The environmental impact of the proposed action;
(2) Any adverse environmental effects which cannot be avoided should the proposal be implemented;
(3) Alternatives to the proposed action;
(4) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
(5) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.[8]

Although this is an important step in terms of a federal law stipulating what must be considered before spending Federal money, the lack of definitive enforcement standards has so far tended to minimize the immediate effectiveness of this policy.

This policy has, however, been strengthened somewhat by the inauguration of Title 23, Section 109(i) of the 1970 Amendment to the Federal-aid Highways Act (P.L. 91-605). This amendment requires that the Secretary of Transportation:

> . . . after consultation with appropriate Federal, State, and local officials, shall develop and promulgate standards for highway noise levels compatible with different land uses and after July 1, 1972, shall not approve plans and specifications for any proposed project on any Federal-aid system for which location approval has not yet been secured unless he determines that such plans and specifications include adequate measures to implement the appropriate noise level standards.

This law provides a definite procedure of non-approval if a proposed highway (to be built after July 1, 1972) does not meet the future Department of Transportation standards.

At present the procedure for planning a proposed Federally financed highway includes three main stages resulting in several years leadtime before actual building may begin. They are:

(1) Approval of the location
(2) Approval of the design
(3) Approval of final construction plans.[9]

The construction must be approved by the State Highway Department; it is their responsibility to furnish evidence to DOT of consideration of the environmental ramifications of the proposed project. Present law does not require that a noise forecast be conducted and included in the environmental impact statement.

Presently the DOT has a rough draft of the noise guidelines that are to be issued by July 1, 1972. The rough draft is in the form of an outline that offers an explanation of the manner in which the DOT is preparing to deal with ambient noise levels in the planning, location, design, construction, maintenance, and operations stages of a proposed Federal-aid highway.[10] Each of the five stages of the project has been further broken down to deal with the applicability, inventory and survey, analysis and interpretation, and summary and presentation. These phases in each stage will also be analyzed with respect to noise levels.[11] For example, stage II (location), phase C (Analysis and Interpretation) includes "noise prediction" in determinations which are to be made as to the expected noise levels by analyzing (according to methods prescribed in NCHRP Report 117) the projected situations of: traffic, roadway characteristics, topography, distance from roadway, and transmission losses through exterior walls of the particular location site of the proposed highway.[12] It appears then, that if all schedules are kept, the standards and guidelines to be issued by July 1, 1972 may bring about a substantial noise reduction in future highways.

However, information compiled as of June 30, 1971, reveals that traffic is now moving on 75% of the 42,500 mile National System of Interstate and Defense Highways, and another 9% is under construction. Engineering and/or land acquisition is underway on another 11% with roughly 4% still in a preliminary stage. This includes about 250 miles stalled because of public controversy. Improvement of primary and secondary highway systems, their urban extensions, and a new urban system, was funded at $1,425 billion for FY 1972 with $30.71 billion of work completed or underway.[13] Thus, noise standards will presumably apply to 4% of the N.I.D.H. system and about 2/3 of the Urban System, most of this being in areas where noise would impact on very large numbers of people.

3.1.3. Occupational Noise

A. Regulations Pursuant to the Walsh-Healey Public Contracts Act

The first concrete effort by the Federal government to regulate sound levels came in the area of occupational health and safety, with the publication of noise regulations pursuant to the Walsh-

Healey Public Contracts Act in the Federal Register on May 20, 1969. Even though the Walsh-Healey Act extended only to Federal Supply Contractors, this was the premise and standard for all other noise regulating legislation that was to follow in the area of occupational noise. The standards in the Walsh-Healey Act do not reflect the original recommendations for safe sound levels. The Labor Department's suggested standard of 85 dBA for an 8 hour workday came under so much attack by industries that the 90 dBA standard was adopted.[14]

Section 50-204.10 of the Department of Labor regulations pursuant Walsh-Healey includes Table 1 which prescribes the permissible level of sound exposure for an eight hour workday.

TABLE 1

Permissible Noise Exposures

Duration per day, hours	Sound Level dBA Slow
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.[15]

Also provided in the Act is a formula to compute the overall level of sound in which an employee is required to work. The actual total time of exposure (Cn) at a certain sound level is divided by (Tn) the permitted time of exposure for that sound level. Then the total exposure to different sound levels is summed (C1/T1+C2/T2+

. . . Cn/Tn).[16] If this sum exceeds 1 then exposure is considered to be a violation of the standards.

The regulations provide that employees subjected to sound that exceeds the prescribed levels in Table 1 must be provided with sound protection through "feasible administrative or engineering controls."[17] Either excessively noisy equipment must be modified or the amount of time the employee is subjected to that equipment must be limited. If the utilization of one or a combination of both means of control fails to reduce the sound level, then the regulation states that the employee must have "personal protective equipment"[18] available to him that assures a substantial reduction in the ambient level of sound in which he is expected to work. Furthermore, if a plant has been found to have noise levels that exceed those prescribed, then a continuous program of hearing conservation must be administered to the affected employees.[19]

The responsibility for the enforcement of Walsh-Healey was delegated to the Department of Labor. The Act provided for seven regional offices which had enforcement powers that extended to their particular locality. Although the Compliance department within the Department of Labor issued orders to these regional offices, health and safety inspectors within the regional offices maintained their autonomy and were responsible to their director first and Compliance second.[20]

The method of enforcing the Walsh-Healey Act with regard to noise entailed the measurement of the sound level in each working area. The measuring was accomplished by the use of a General Radio sound level meter.[21] This instrument measures the sound level in dBA at a slow response. An impact meter is used to measure a fast impulse noise. Both instruments are calibrated each time before use. These instruments are required to meet the standards prescribed by the American National Standards Institute for Sound Level Meters (a private firm).

Where a noise level has been measured and found to exceed the prescribed standard the factory operator is issued a violation. Receipt of a violation requires the administration of an audiometric test to each exposed worker. From the results of the audiometric test a determination may be made upon the possible impairment of the worker's hearing. If the results of the hearing test demonstrate aural damage as a consequence of exposure to unlawful levels of noise, then the factory operator is issued a citation. The maximum penalty available under the Walsh-Healey Act is a recommendation by a regional administrator to all government agencies to the effect that the establishment be prohibited from bidding on future Government contracts for the following three years.[22]

The effectiveness of enforcement of the Walsh-Healey amendment with respect to noise is contingent on the men and machinery that the Labor Department has at its disposal. The Walsh-Healey Act extends to approximately 75,000 plant locations[23] and to circa 27 million workers.[24] In May 1969, the Labor Department had a total of six sound level meters and seven trained health and safety inspectors who were familiar with the noise meters,[25] they now have 120 meters. That noise is a substantial safety hazard is not widely accepted. Since the nascence of the Walsh-Healey regulations, noise measurements have been taken in 21% of the locations inspected.[26] Thus, noise has a relatively low priority to those in charge of inspections; generally they are more concerned with health and safety hazards like faulty machinery.

B. Enforcement Procedures Adopted for the Occupational Safety and Health Act of 1970

With the inception of the Occupational Safety and Health Act of 1970 the noise standards as prescribed in Walsh-Healey Act will be extended to all employers whose businesses affect interstate commerce. The Walsh-Healey regulations, adopted in the Occupational Safety and Health Act of 1970 with respect to noise, became effective on August 27, 1971.

According to the Labor Department enforcement procedures for the Act will closely follow, but expand upon, those guidelines used to monitor the Walsh-Healey Act. For example, the seven regional offices have been expanded to ten. Hopefully, this expansion will be adequate to monitor the 55 million new workers affected by the Act.[27] Along with the expansion of regional offices, the Labor Department hopes to increase coordination and centralization of these offices.

Other changes include the expansion of man power; estimates of the eventual figure range between 2,000-3,000. The increase of health and safety inspectors necessitates an increase in the number of sound level meters. Plans are underway to purchase 400 new meters to add to the existing 120.[28]

C. Regulations Pursuant to the Federal Coal Mine Health and Safety Act of 1969

Another important outgrowth of the Walsh-Healey amendments with respect to noise is Subpart F or Part 70, Subchapter 0, Chapter 1, of Title 30, Code of Federal Regulations, which outlines mandatory noise standards in underground coal mines. These regulations pursuant to the Federal Coal Mine Health and Safety Act of 1969, (P.L. 91-173) became effective upon publication in the Federal Register on July 7, 1971. The regulations outlined in this amendment concern the manner in which noise is to be regulated in underground mines and adopt the standards as outlined in the Walsh-Healey regulations.

Enforcement of the regulations has been delegated to the Bureau of Mines. Thus, the Bureau is responsible for the approximately 100,000 miners employed in the 1,900 registered mines across the nation.[29]

The regulations include a complicated means of enforcement which delegate a major part of the responsibility to the mine operator. The law requires that each mine have at least one operator trained to use sound level meters. The Bureau will train the operators to take the periodic (at least every six months) and the supplemental surveys. This training consists of a one week course given by an industrial hygienist from the Bureau. Training of these operators began in December 1970, and to date approximately 1,100 have been trained.[30]

The sound level meters used are BNK type 2205 and General Radio type 1565. These meters are required to meet the operational specificiations of the American National Standards Institute for Sound Level Meters. They are on the A-weighted network, operate on a slow response, and must be acoustically calibrated before, during, and after use.

The first survey, or the screening survey was due June 30, 1971. The regulations announcing this deadline were not announced in the Federal Register until a week later, July 7, 1971. Bureau of Mines officials claim that operators therefore will have until September 30, 1971 to file surveys without penalty under a "no penalty violation notice" now being drafted by the Bureau of Mines. The screening survey is required to be taken periodically, that is, once every six months but at no interval of less than three months. The supplemental survey, which is also to be conducted by the mine operator, is necessary only if the periodic survey demonstrates that a miner is working under noise conditions that violate those prescribed in the regulations.

These surveys must be administered to each miner for every piece of work completed during his eight hour shift. (A piece of completed work in this context refers to any definable or discrete operation occurring during a miner's shift -- for example loading a coal cart.) Five measurements are to be made, and the average of these five measurements will determine the noise level of the specific operation measured. Each measurement is taken for 30 seconds.

If the initial or periodic surveys demonstrate that a miner is working in unlawful noise levels then the mine operator is notified by the Bureau of Mines that he must conduct a supplemental survey. This survey must be taken 15 days following notification by the Bureau. The noise level for the supplemental survey is measured during the entire period of each operation the miner performs.

When the supplemental survey indicates that a miner is working in noise levels prohibited by law, then the Secretary of the Interior issues a notice of violation and the operator is required to institute administrative and/or engineering controls that assure compliance to the prescribed standard. These controls may include the use of protective devices that the Secretary's representative approves as non-hazardous to the miner, but which are not specified in the regulations.

In conjunction with the controls, the regulations stipulate that the mine operator must submit a continuing program of hearing conservation to a joint committee of Bureau of Mines and Health, Education and Welfare. This program should have provisions for:

(1) Reducing environmental noise levels;
(2) Personal ear protective devices to be made available to the miners;
(3) Preemployment and periodic audiograms.[31]

The coal mining areas in the United States have been divided into nine regional districts. Approximately 1,000 trained health and safety inspectors will be responsible for the monitoring of the nine districts. These men are required to make four safety and health inspections per mine in a year.[32] The inspections by these men will include noise surveys so that there does exist a means of checking the mine operator's figures.

The Bureau of Mines has had much opposition to these rules and regulations from the United Mine Workers of America. The major thrust of the criticism has been aimed at the adoption of the 90 dBA level of cumulative exposure. W.A. (Tony) Boyle, President of the Union, voiced his opinion to Dr. Elburt Osborn, Director of the Bureau of Mines, in a letter of December 31, 1970:

> The 90 dBA level of exposure is too high. It is my understanding that 30 percent of the workers exposed to this level will have impaired hearing at age 60 whereas only 20 percent of all other individuals reaching that age show the same degree of impairment . . . we strongly urge that the eight hour standard be set at 80 dBA with a time limitation for achieving this level.[33]

Other objections to the July 7, 1971 rules and regulations include the lack of a "protective statement that noise levels shall not exceed 115 dBA."[34] The December 9 proposed rule-making did have a provision to this effect. The omission of such a statement in the final rule becomes important when considering the noise levels reached in dynamiting procedures. Peak meters may cause electrical sparks that could explode methane gas in coal mines. Impact noise from dynamiting could be measured by using special tape recorders but these are considered "too expensive for the purpose" ($2000).[35] Potential injury to hearing from explosions (ruptured eardrums) differs from the kind of hearing loss with which these regulations are primarily concerned (injury to hairs of the cochlea caused by long exposure to noise).

Another major problem is the manner in which noise levels are determined. W. A. Boyle objects to the prescribed methodology of averaging the five 30-second readings to determine the sound level of a particular operation. Boyle proposes the utilization of a dosimeter to record the cumulative noise level during an entire eight hour shift.[36] The use of a dosimeter would more accurately determine the severity of a continuing and hazardous noise exposure.

Other questions might be raised concerning the Bureau of Mines rules and regulations, such as the advisability of putting the mine operator in charge of administering the surveys. The technique presently in use requires the operator to take the reading and record that reading. Potentially this recording could be falsified given the operator's position. The effectiveness of this or any other piece of legislation is primarily contingent upon the means of enforcing the legislation. For this reason, these initial objections to the new rules and regulations are a good indication of the possible problems that may be encountered in effective enforcement.

3.2 THE EFFECTIVENESS OF STATE LEGISLATION

3.2.1 State Attempts to Regulate Airport Noise

A. California Airport Statute

The issue of Federal preemption of regulatory action over aircraft noise is a serious one (Section 2). Nevertheless, driven by the widespread protests against noise around airports, some states have moved toward attempting to set overall noise limits for airports; California has adopted the first and most comprehensive legislation which was passed by the Legislature in 1969.[37] This law (as discussed in 1.2.2A) directed the State Aeronautics Board to set limits on airport noise, using two criteria (1) the level of noise acceptable to a "reasonable person living in the vicinity of the airport" and (2) constraints which were economically and technically feasible. The Aeronautics Board has attempted to reconcile these two criteria by setting stringent limits to be achieved, with allowance for stepwise reductions in noise over a 15 year period in the case of the large hub airports. Using a formula involving the number, duration, and time of day of aircraft operations as well as the level of noise generated, the Board established a series of Community Noise Equivalence Levels (CNEL) expressing various degrees of noise impact in decibels (dB). A "noise impact boundary" must be determined for each airport, consisting of the locus of points along which the annual CNEL equals a "criterion" value stated in the law. Any airport having a nonzero noise impact area based upon this boundary must request a temporary variance to continue operation, and further must initiate actions to eliminate unacceptable noise impact on residences, by means such as reducing and rescheduling operations or by buying houses within the impact boundary.

The law also directs airport managers to establish single-event noise limits at least as stringent as those suggested in the law, the county being responsible for enforcement of that limit.

Unless the State Legislature intervenes, the regulations established by the Aeronautics Board will take effect on December 1, 1971. Although there is of course no record of enforcement as yet, the methods of enforcement which have been planned can be examined and some of the problems of enforcement can be foreseen.

B. Monitoring and Enforcement of the California Aircraft Noise Law

Noise impact boundaries will be worked out for each airport, and by counting the number of residences within the boundary (and by attitude surveys and a history of past complaints for the affected area) it will be determined for each airport whether it has a "minor problem," a "severe problem," or no problem. Airports with minor problems (e.g., fewer than 1000 residences within the impact boundary) can depend on occasional monitoring or spot checks; those with severe problems will be required to maintain a constant monitoring system using microphones set on utility poles along the boundary. Airports with noise exceeding regulatory limits at their noise impact boundary will be subject to administrative penalties based on the power of the State Aeronautics Board to remove their license and/or civil actions.

Single-event limits will be monitored by microphones off the end of runways and the airport manager will report violators to the county prosecutor for enforcement or will assume responsibility. The penalty for single-event violations is a $1000 fine for each violation. The single-event limit is intended only as a control over excessively noisy operating procedures. It is deliberately set slightly higher than the normal noise emission for the heaviest aircraft operating at the airport.

Both the Aeronautics Board and individual airport managers believe that the critical test of technical/economic feasibility will come at the end of the first five year period (December 31, 1975) by which time major hubs must achieve a reduction from CNEL= 80 dB to 75 dB at their noise impact boundaries. The California Aeronautics Board can grant variances and expects that airports with severe problems, such as Los Angeles International, will be given until 1977 to comply). Nevertheless some officials of Los Angeles International Airport (LAX) have said that to meet this standard, LAX would be forced to reduce its operations to 20% of the current number or to spend billions of dollars to buy residences within the impact boundary. It is possible that unless a large scale program of retrofit is undertaken in the meantime, compliance with the statute could entail some curtailment of air transportation.

The constitutionality of this law will be challenged by the airlines on the grounds of Federal preemption and unreasonable burden on interstate commerce. The position of the State is (1) that this area has not been preempted by the Federal government, since the only Federal rule-making as to aircraft noise concerns certification of new aircraft; and (2) that the noise standards are firmly grounded in the rights of airport proprieters to control the use of their property and the fact that all public airports in California are licensed by the State.

A legal hazard in the administration of the Act is the possibility that courts will use the CNEL contours, once established for a particular airport, as evidence of damages in inverse condemnation proceedings, thus -- again as in the case of Los Angeles -- possibly forcing the airport into bankruptcy or seriously disrupting air transportation in an area which, because of long distances and the lack of alternative rapid transportation, is heavily dependent on air carrier routes. This possibility persists although the Act provides that it shall not be so used. This matter was considered at length by the California Law Revision Commission, consulting with the interested parties, and the Commission reached a conclusion favoring a three-year moritorium on the use of the aircraft noise standards for purposes other than regulatory enforcement of the standards. The Commission stated:

> A statutory moritorium will permit the further scientific testing and experience needed to assist in determining whether the noise regulations of the department or similar standards can appropriately be utilized in civil damage litigation. At the same time, having the regulations go into effect on schedule will permit needed testing to be conducted and experience to be gained and will permit regulatory enforcement, thereby hopefully reducing noise pollution.[38]

A statute to ensure this moratorium is now under consideration by the Legislature.

The above discussion points up a major difficulty in the attempt to abate aircraft noise. The dilemma faced by states is reconciling the Public Interest as defined by the interests of communities and citizens living near airports, and the Public Interest as defined by the need for a viable transportation system, in that the ultimate penalty provided to the State in case of violations is the threat of removal of the airport's license. The consequences of closing down Los Angeles and other large airports are so great that the threat becomes something of a "paper tiger." A more practical penalty would be the levying of a punishing fine for each day of violation. The cost to airports of monitoring equipment required by the California airport legislation is given by the Department of Aeronautics as ranging from $12,000 for small airports to a maximum of $280,000 for Los Angeles International.

C. Other Means of Regulation by States of Aircraft Noise

A few other states have under consideration laws similar to those of California but are likely to wait for the outcome of this first attempt. In general, states which are passing or have passed noise legislation exempt aircraft noise, except for some prohibitions or limitations on warm-up noise or engine testing noise on the ground.

However, 25 states own and operate a total of 700 airports of which more than 300 are served by air carriers (see Table 2). The State, in its proprietary capacity, exercises some control over the use of its property in regard to noise generation as well as to other conditions. The most extensive noise abatement program is that of the bi-state Port of New York Authority (PONYA), which operates four airports in New York and New Jersey under the terms of an interstate compact.[39] PONYA attempts to control noise chiefly through limitations on take-off noise (maximum limit 112 PNdB at the edge of residential areas). This is enforced through the device of requiring

TABLE 2

States Owning Airports

States	Served by CAB Certified Air Carriers	Not Served by CAB Certified Air Carriers
Alabama		4
Alaska (1)	283	215
Arizona	1	
California		1
Connecticut	2	3
Hawaii (2)	12	2
Florida		3
Idaho		30
Illinois	1 (3)	
Kentucky		3
Louisiana		1
Maine	1	2
Maryland	1	
Massachusetts	2 (4)	
Michigan		4
Mississippi	1	
Missouri	1	
Montana	1	11
Nebraska		5
New Hampshire		1
Oregon		43
Pennsylvania	3	2
Rhode Island (5)	1	4
South Carolina	2	19
Texas		3
Vermont	3	8
Washington		13

1. Alaska owns and operates all public-owned airports in the State except 2.
2. Hawaii owns and operates all public owned airports and heliports in the State.
3. Illinois is constructing a new airport to be owned by the State but primarily to serve the Saint Louis (Mo.) metropolitan area.
4. Massachusetts - two airports are operated by the Massachusetts Port Authority but legislation stipulates that the Authority is a branch of the State government.
5. Rhode Island owns and operates all publicly owned airports in the State.

Source: The National Association of State Operating Officials.

each aircraft to request permission to use each airport on the basis of information supplied by the manufacturer about noise emissions and by the airline about operating procedures. Take-off noise is monitored and violations reported immediately to the airline for relay by radio to the pilot while still in the air, so that operating procedures can be reviewed and checked. Both FAA and the airlines cooperate in practice, but the airlines have refused in theory to recognize the regulating authority of the airport. One airline refuses to "request" permission but is careful to "notify" PONYA of its intentions and to provide the required information. It is widely asserted that many aircraft momentarily cut power in approaching the monitoring box, thereby evading the intent of the procedure.

In terms of the standards which are set, the regulation is effective; overall approximately 99.5% of take-offs conform to the noise standard of 112 PNdB, with 80% of them below 105 dBA, although the percent of violations is much higher for heavily loaded international jets. Nevertheless, in terms of noise reduction the regulation is grossly ineffective. The number of violations is low because the standard itself is very lenient. PONYA takes the position that lowering of the limit would make compliance technically unfeasible.

More importantly, this method of noise control is ineffective because PONYA as airport owner has no authority to regulate landings, a power exercised exclusively by FAA. Landings are perceived as noisier than take-offs because of the long glide-path, and so produce 80% of the complaints received by the airport.

PONYA, and many other large airport owners, opposes prohibition of night time flights on the grounds that (particularly for international flights where time zones are a big factor) transportation would be seriously curtailed. Congestion at some airports has reached the point, moreover, that safety considerations dictate spreading flights to schedule more, rather than fewer, in off-peak (nighttime) hours.

Moreover, buying residences around large hub airports is not a promising alternative, particularly in New York given the high demand for housing and the shortage of space in this metropolitan area. Nor does it appear to be possible for New York to find space for a large new jetport to reduce traffic at Kennedy and LaGuardia. Given these constraints, it appears doubtful that any attempts by the Port Authority to control noise around airports will be effective.

3.2.2 Vehicle Noise Programs

Although most states have some legislation pertaining to vehicle noise, in most cases it is limited to muffler and horn-blowing laws and no quantitative standards are involved. Such laws are seldom or never consistently enforced, although there is evidence that strict enforcement of prohibitions on modified or defective mufflers would significantly reduce highway noise levels.

In California, in one three-month period, 55,000 passenger cars and pickup trucks were monitored. Only 0.03% exceeded statutory limits (plus tolerance) and all but one of these 15 vehicles had modified or defective exhaust systems. (Passenger Car Noise Survey, January 1970, California Highway Patrol). Further evidence comes from a California Noise Enforcement Summary Report, January-April 1971:

Vehicles	Number of Violations	Percent	Percent with Modified Exhaust	Percent with Defective Exhaust
Speeds 35 MPH and Under				
Trucks	126	1.9	0.008%	60%
Motorcycles	26	6.4	23%	35%
Passenger Cars	277	0.57	32%	28%
Speeds over 35 MPH				
Trucks	1,108	1.3	.0009%	19%
Motorcycles	87	6.4	46%	35%
Passenger Cars	523	0.33	24%	24%

The most comprehensive state law limiting vehicle noise is that passed by the California Legislature in 1967, establishing maximum noise emissions for vehicles operating on public highways. (Maximums were lowered for vehicles with gross weights of 6000 pounds or more in 1969, and for all other vehicles during the 1970 Legislative session; and permissible maximums for heavier vehicles will automatically drop again as of January 1, 1973). Limits are specified for zones with a speed limit of 35 mph or less and for zones with higher speed limits. New York State has a law similar in most respects to California's, and other states have such laws under consideration, but California has the most experience in administration and enforcement. California also sets emission standards for new vehicles with respect to noise.

A. Level of Enforcement

The level of enforcement of state vehicle noise standards is extremely low even in California. There, six 2-man monitoring teams are responsible for 162,303 miles of highways, and 11,980,000 registered motor vehicles; and only the Los

Angeles area team operates full time. In New York, enforcement is left to the regular Highway Patrol cars (patrolmen "sometimes" carry noise meters), and one observer reports that only six summons have been issued in two years.[40]

During the first 12 months of enforcement in California,[41] 600,000 vehicles were checked by six teams and fewer than 3000 were found to violate the permissible limits: 1.2% of the trucks, 0.1% of passenger cars and pickups, and 2% of motorcycles. In general operators are cited for a first offense only where the vehicle has been deliberately modified. In cases where a defective muffler is thought to be the chief factor a mechanical warning is issued, and removed on proof of repair. There is no record of the number of cases carried to the courts, since this is a minor offense and the usual penalty is a fine of less than $25, but the Highway Patrol states there have been "a number of cases" most of which resulted in convictions.

There is considerable dissatisfaction with the effectiveness of the highway noise abatement program as evidenced by a number of bills now before the State Legislature which would set more severe standards for operating vehicles, new vehicles, mufflers, and pneumatic tires. In general, the Highway Patrol and automobile clubs oppose stricter limits for operating vehicles (on the grounds that compliance is not technically feasible for the operator) but support standards applicable to manufacturers and others.

Testing of new vehicles at the present time is done only if a monitoring officer reports a violation by a new or current-year vehicle. In this case the manufacturer is notified and several models are tested; since the California Highway Patrol can revoke the right to sell in that State, manufacturers have once or twice recalled vehicles for equipment with better mufflers.[42]

Besides California, no other states except Minnesota and Colorado set noise standards for new vehicles. Colorado's law went into effect July 1 of this year and so no experience with enforcement can be reported. The Colorado Act also sets out standards for operating vehicles which may be adopted by any county or municipality. Minnesota's new vehicle law will take effect January 1, 1972.

B. Limitations on Effective Enforcement

Reasons for ineffectiveness of vehicle noise legislation are (1) inadequacy of existing standards, (2) defects in legislation, (3) technical difficulties of monitoring vehicle noise, (4) low priorities given to noise control by enforcement agencies, and (5) the small chance of apprehension of violators and the relatively insignificant penalties incurred. The costs of vehicle noise programs are not large compared to other pollution control programs, but may nevertheless be a significant constraint in some cases.

It is widely asserted by California legislators that their constituents believe existing standards to be inadequate. Bills currently before the State Legislature propose reducing the permissible noise from passenger cars from 76 dBA in 35 mph zones to 70 dBA. The Highway Patrol has just completed a survey which indicates that only 1% of cars and 1% of heavy trucks exceed present statutory limits on level urban streets.[43] This would argue (especially since most violations are attributed to defective or deliberately modified mufflers) that existing standards are in no way pushing the development of the technology but in fact lag behind it. It is expected that the proposed legislation may be changed to set a standard which is presently exceeded by 5-7% of vehicles, and the California Highway Patrol will support this change on the grounds that compliance is technically feasible.

The legal difficulties of enforcing laws which do not set quantitative standards have already been discussed (Section 2). California's law specifies maximum noise levels for automobiles in zones with speed limits below (or above) 35 mph. This is an improvement over the New York law which specifies limits for cars traveling at less than 35 mph, since in California a presumption can be made about the speed. In New York since cars are monitored only in actual operation on highways, it is necessary to pick only those obviously moving at 35 mph or less.

The technical difficulties of monitoring vehicle noise and separating and identifying specific noise sources are a severe limitation on enforcement. California requires that there be 100 feet of open space (free of tall buildings and other noise sources) surrounding both the monitoring microphone and the monitored vehicle; this makes it difficult to select appropriate monitoring sites on freeways (particularly for limits of 35 mph or less) and nearly impossible on urban streets. California is studying technical devices for overcoming this difficulty. In both California and New York noise must be measured at a distance of 50 feet from the center line of the highway, which again is difficult or impossible in urban residential areas and center city. Where enforcement is left to the regular activities of State Police, without special monitoring teams, as is the case in New York, the priority assigned to this activity is inevitably very low, since police understandably attach more importance to accident investigation and prevention and to crime prevention and detection. Some observers report that patrolmen equipped with noise meters seldom use them and therefore rapidly lose proficiency with them,which again reduces the probability of their use.

Idaho has attempted to put greater force behind its muffler law (which is of the usual type forbidding defective or modified mufflers) by amending the law to require that the muffler be adequate to prevent noise of over 92 dBA 20 feet to the side of the vehicle. However, the Head of the Vehicle Inspection section of the State Highway Department states that this provision is not enforced because vehicle inspections are carried out in designated garages which have no sound measuring equipment.[44]

California reports that noise limits are enforced only with regard to engine and exhaust system noise, contrary to the statutory provision, yet major factors in vehicle noise are tire noise and wind noise. The Noise Survey of Vehicles Operating on California Highways (June 1971, Advance Copy, unedited) notes that:

> (I)t must be concluded that the largest percentage of the noise generated by a truck or truck-tractor combination moving down the road is running gear noise including tires. For pickup the noise produced during acceleration from 45 m.p.h. is less than the engine running gear noise at 65 m.p.h. cruise-by.

The Survey further notes that:

> (M)ud and snow tires add significantly to the total vehicle noise. For both the pickup and the passenger car, the noise measurement while coasting with mud or snow tires was 8 dBA and 6 dBA over the noise of coasting with conventional tires respectively.

Nevertheless, California does not enforce limits where the major source of excessive noise is tires, on the grounds that the vehicle operator cannot feasibly reduce this noise.[45]

Another reason for the lack of effectiveness of vehicle noise legislation is undoubtedly the relatively low probability of any given vehicle being monitored, or of a given operator receiving a summons, coupled with the relatively small penalties assessed, the usual penalty levied by California courts being less than $25. The rate of conviction in those cases brought to court is, however, said to be high.

The low penalties involved may also account for the fact that the right of California to impose noise limits on operating vehicles has not been challenged in court, although it could plausibly be argued that it constitutes a burden on interstate commerce inasmuch as it applies to out-of-state vehicles. However, it is likely that the law would be upheld on the same grounds as state safety regulations.

The cost of developing and administering a vehicle noise program on the level of California's are not unduely large. Three pilot programs (from one to three months in limited areas) were run and a manual developed; the engineering costs, as estimated by Ross Little, Acting Commander of the Engineering Section of the California Highway Patrol, were:

Engineering time	$10,000
Traffic Officer time	18,000
Total estimated labor charge	28,000
Equipment costs*	2,000
Total	$58,000

*Equipment costs probably represent the cost of modifying standard equipment, since equipment costs per monitoring team, of which there are six, is said to be approximately $700. This consists of a sound meter remotely attached to a portable microphone.

Annual engineering costs for the program are $1,200 for equipment repair and calibration, some administrative costs, and some engineering costs involved in the New Vehicle Noise program as well. Total annual budget for the program is $270,000. No more than two days is required for training highway patrolmen in the use of the equipment following the manual developed in this program.

An American aerospace firm has developed a vehicle monitoring system which involves a computer, and which is said to be under test in Munich but has not been used in this country. It would be much more expensive than the system described here.

3.2.3 Other Anti-Noise Programs in States

States as well as cities sometimes have laws on their books defining noise in terms of general nuisance, disorderly conduct, etc. Such laws rarely include quantitative standards and are seldom regularly enforced. For example, Illinois has had a general nuisance noise law in some form or other since 1821, with the present statute written in 1961, but there is little record of enforcement; two cases are recorded at the appellate level. There are probably other cases involving convictions for disorderly conduct, and there may have been cases where individuals sought to enjoin a noisy activity, but what is clear is that the statute has never been used to attack major noise sources like factories or transportation equipment since those cases would be appealed.

Many states are beginning to legislate against excessive noise from boats and other "leisure time" vehicles and equipment, especially snowmobiles.[46] The standards set vary widely, for example (in the case of snowmobiles):

Illinois (proposed)	80 dBA measured at 5 feet
Montana	85 dBA measured at 15 feet
New York	88 dBA measured at 50 feet
Vermont (pending)	82 dBA measured at 50 feet
Washington (proposed)	82 dBA measured at 100 feet
Maine	"an adequate muffler"

In some cases conservation officers or game inspectors, who are most likely to do the major enforcement work against leisure time vehicles, depend strongly on snowmobile clubs to police their membership. The disparity in standards among states will constitute a big problem for snowmobile manufacturers if this trend continues.

Some states are now passing more comprehensive noise statutes (e.g., Hawaii). Illinois enacted a general environmental protection statute last year (Public Act 76-2429, effective July 1, 1970) which empowers a Pollution Control Board to set quantitative standards and monitoring procedures for noise, as well as for other forms of pollution, and the Illinois Environmental Protection Agency is now in the process of formulating such standards, as is the Health Department for the State of Hawaii. In Illinois violators of the pollution law will be liable for civil penalties up to $10,000 plus $1,000 for each day of violation.

3.3 THE EFFECTIVENESS OF LOCAL NOISE CONTROL ORDINANCES

3.3.1 Transportation Noise

A. Aircraft Noise

There have been numerous attempts by local governments to prohibit or restrict aircraft noise in various ways. They have either been struck down (see Section 2) or they remain on the books but to no effect. For example, Santa Barbara, California, in its city ordinances defines sonic boom as a nuisance and prohibits the piloting of supersonic planes over the city in such a way as to cause sonic boom (Section 9.16.030 and 9.16.040) but for obvious reasons makes no attempt to enforce this ordinance. Aurora, Colorado, is presently seeking an injunction against the Denver Airport to ban overflights as a nuisance. In a few cases courts have upheld curfew laws. Local governments continue to seek ways to abate aircraft noise, in spite of their lack of success in the past; they are impelled to do so by the indignation of their citizens. A measure of this indignation is the fact that the Airport Operators Council International presently lists 1,040 noise suits pending against major airports (808 of them against the Port of New York Authority); 812 of these suits ask for unspecified damages and the remaining 228 claim damages adding up to nearly four billion dollars. As owners and operators of airports, local governments find themselves the defendents in most of these suits. In some of the suits, however, local governments are the plaintiffs.

B. Vehicle Noise

Only a few cities have tried to enforce vehicle noise laws with quantitative standards. In Hawaii the state has preempted the field and in California and New York the operative assumption is that the field has been preempted by the state. Colorado State law incorporates a set of vehicle noise standards which local governments may adopt.

It is widely recognized that vehicle noise is in fact a significant factor in objectional noise levels in cities and along heavily traveled highways of all kinds. It has been a significant factor in controversies attending the location of the Federal Interstate Highway program. In the vehicle noise area, heavy trucks are a particularly serious source of noise. The proposed New York City Noise Ordinance as first written contained a provision aimed at controlling truck noise, but this has now been removed because it is considered to have been preempted by the State law.

Boulder, Colorado, has an ordinance which prohibits any person from operating "any type of vehicle, machine, device" or carrying on "any other activity" which produces noise in excess of 80 dBA as measured at 25 feet from the public right-of-way or from the property line on which the source is located. As written the ordinance applies to vehicles and to all other sources (except trucks weighing 10,000 pounds or more and operating on prescribed routes from 7 am to 6 pm, which are limited to 88 dBA). This standard "has been tested and found to be legal in Municipal Court," and "a written appeal was not accepted by the next higher court."[47] The Boulder program is said to be aggressively enforced, and the Boulder Noise Control Officer, Thomas A. Martin [Lt. Col. (Ret.) USAF] states that:

> Relatively expensive equipment with a graph attached has taken the animosity out of the program in addition

> to a definite distance and noise level established by law. I strongly recommend this type finite language be used in any federal legislation. (Letter of July 9, 1971).

Col. Martin further attributes the success which he claims for this program to "Education as to health facts associated with noise (which) has elevated the program in Boulder to one of moral responsibility."

There are no measurements of effectiveness available in terms of actual noise levels in Boulder before and after the program, but there are measures of compliance with the Warning (an order to fix an offending vehicle), which results in 90% compliance, after which all legal action ceases, and of compliance with a Summons (95% compliance). The city only purchases items which meet the 80 dBA at 25 feet standard. Monitoring is accomplished by two-man teams working with a microphone and calibrator.[48]

The standard of 80 dBA used in Boulder was chosen because "Noise is a health problem, not a nuisance, and must be controlled the same as any other disease in our society. HEW figures indicate 80 dBA is that point which creates this health problem," according to Col. Martin. He further comments that this is the "level of noise which will prohibit normal conversation and was found to irritate 75% of the people surveyed."

That standards used in some cities in the United States are higher than technology would dictate is indicated by the fact that other nations have set stricter standards.[49]

The technical difficulties of monitoring vehicle noise in cities are very great due to the difficulties of separating noise sources, particularly in the confines of heavy traffic and narrow streets surrounded by tall buildings which reflect and amplify noise. A few cities are resorting to setting standards for the manufacture and sale of new vehicles, but this is likely to be of limited effectiveness because of the large number of vehicles of all kinds which use city streets but are purchased elsewhere. All metropolitan areas include multiple local governments, and some straddle state lines. Under such conditions, new vehicle standards will be effective only if they are State or nationwide standards and even then only over a period of five to fifteen years, and if one disregards the noise resulting from deterioration of aging vehicles.

Most cities (and states) have laws requiring "adequate" mufflers or prohibiting modified or defective mufflers. Evidence has been presented (Section 3.2.2) that rigorous enforcement of even these laws could be partly effective in reducing vehicle noise even without quantitative standards and without improving the existing technology. Enforcement levels in fact vary widely from locality to locality. The City of Birmingham, Alabama, (where violators may be given a $10 citation by the arresting officer or may suffer a jail sentence of 180 days or a fine of $100 and court costs) reports that:

> This section of the code is strictly enforced. At this time, we do not keep records of particular categories of this type of violation (but) a rough estimate would amount to about 60 citations a month.[50]

In Billings, Montana ($12 fine for the first violation), police estimate 156 citations issued during 1970, and report: "We find it to be an effective ordinance and have had no difficulties with it."[51] In Billings, the officer's judgment is the only method of measuring the noise, and the majority of citations are issued in the evening, in residential areas, some on the basis of observation by police officers and some as the result of complaints. (The population of Birmingham is 325,000 and of Billings, 55,000, which indicates roughly equal levels of enforcement.)

Ann Arbor, Michigan, forbids any person to operate a vehicle producing excessive noise, or to operate a vehicle without a muffler which prevents excessive noise, or to sell or install an inadequate muffler, and specifies that "acceptable noise level" is 90 dBA at 25 feet under specified conditions of acceleration and speed. The City Attorney, however, comments as to enforcement:

> I am informed by the Police Department that while there are often prosecutions for disorderly conduct, for the loud playing of radios and phonographs, and for inadequate mufflers, not very much use is made of the sound meter provisions of the code. The reason given for this is that it is difficult to have enough officers available so that one officer can handle the machine and another can apprehend the violator. The sound meter is sometimes used, however, to test the noise level at particular locations and also to evaluate the situation when a citizen claims that he has unjustifiably been ticketed for improper automobile equipment.[52] (Emphasis added)

But the more general pattern is for a very low level of enforcement of muffler laws, as well as can be determined from the paucity of available data, since local governments seldom aggregate such statistics. In Washington, D.C., to consider a more typical example, violators of the muffler law are issued a citation in the form of a ticket or sticker stating that the muffler must be replaced at the car owner's expense; no other penalty is levied. Again, the major reason for non-enforcement is the low level priority attached to vehicle noise reduction by police in the context of their other duties, and presumably by citizens, who are likely to grumble that police should spend their time pursuing "criminals" instead.

Enforcement of horn-blowing prohibitions follows the same pattern, with the additional constraint that an "emergency" or safety precaution can usually be offered by the offending driver as a sufficient excuse. However, Memphis, Tennessee enjoys a wide reputation as a quiet city, and city officials attribute this in large measure to strict enforcement of the provision forbidding horn blowing "except as a danger signal . . . ":

> Many years ago the city inaugurated a program of strict enforcement against unnecessary horn blowing which was diligently pursued and apparently resulted in the education of the driving public to omit unnecessary horn blowing from their driving habits. The result is that today many years later automobile horns are but rarely heard in the city. The ordinances are, of course, still strictly enforced.[53]

Noise from mass transit facilities is another major factor in noise levels in some cities, New York City being a prime example. The proposed city noise ordinance however, after giving to the Administrator the power to provide noise standards for new and existing rapid transit railroads, says:

> With respect to existing rapid transit railroads, allowable sound levels and acoustical performance standards shall be limited to those which are reasonably attainable without additional expenditures. (Emphasis added)

The Transit Authority[54] reports that this will dictate only a substitution of materials in one part used on subway trains where the materials are equal in cost and one may have slightly better acoustical qualities. The explanation is, obviously, the economic impacts which would follow from a real attempt to reduce noise on the 750 miles of track, 250 miles of structures, 400 subway stations, and 6000 cars now owned and operated by the Transit Authority. The technical constraints on attempts to reduce noise levels may be suggested by a quick look at the present noise reduction program with regard to subways. The program consists of improved rail anchoring, increased attention to maintenance of rails and wheels (by polishing, grinding, and truing), and experiments in improved acoustical treatment for stations, especially barriers between express tracks and local stations. Rubber pads between rails and flooring can reduce noise at adjacent building lines by 5 dBA and inside cars by 3 dBA; all new track and all replacements are of this kind, but only about 4 miles of track are replaced per year (750 miles of existing track), 11 miles in all so far. New subway cars are all air-conditioned, which reduces noise inside the car by as much as 10 dBA. New acoustical treatment of station walls and barriers, being developed with the support of a HUD Model Cities Grant, can reduce noise in some stations by 8 or 9 dBA but development of the material is still struggling to meet the requirements that it be fire-proof, cleanable, and impervious to vandalism. At present no similar method of acoustically treating tunnels themselves appears even potentially feasible, since the material is very expensive (estimate: $1.25 per square foot).

3.3.2 General Noise Laws

A. The Nuisance of Noise

As has been described, many municipalities have ordinances prohibiting excessive or unusual noises from a variety of sources in the form of nuisance laws, or zoning provisions forbidding excessive noise past property lines. It is extremely difficult to obtain hard data on either the level of noise in such places, or the level of enforcement of the law. In most cases enforcement is on the basis of citizens' complaints, and the level of complaints varies not only with the amount of noise, but probably to a greater extent with socio-economic factors, and with the degree of confidence which citizens feel about the effectiveness of their complaints. In Inglewood, California,[55] a city of 90,000 which has become acutely noise-conscious over a period of many years because of its proximity to Los Angeles International Airport, 50% of the citizens stated "aircraft noise" in response to a special census question as to what is the biggest problem of their community. In a different survey, part of a Community Review Program in the same city, 42% of the citizens complained of noise, and 74% in response to a specific question, characterized their neighborhoods as "noisy" or "very noisy." In New York City, the Noise Abatement Office, which has no enforcement powers, regularly receives 400 complaints a month, in addition to the hundreds of complaints which are registered with the police, the health department, the Mayor's Office, and the Port Authority. In most localities, however there is no reliable measure of citizens dissatisfaction with noise levels because no agency aggregates and collates complaints.

Response to citizens' complaints in most cities is in the form of, at best, a warning from the local policeman to offender or a call from a health department or other agency seeking voluntary cooperation in reducing noise. No statistics are generally kept concerning even those cases where citations are issued; and since these are minor cases there is generally no case law codification to consult. In general it is safe to say that the level of enforcement is uniformly low. For example:

> The Legal Division does receive a number of complaints from citizens with respect to noises generally. . . . However, to my knowledge, our municipal force has not prosecuted any such cases in court. . . . (Daniel U. Livermore, Jr., Assistant Counsel, Jacksonville, Florida, letter of June 23, 1971.)
>
> . . . For our enforcement work, we have purchased a sound level meter and it has been very useful to us (in connection with a zoning ordinance passed in 1965). We have not used it yet to serve anyone with a violation notice, but I suspect it will be only a matter of time and we will. (Tom O. Moore, City Planning Director, Rochester, Minnesota.)
>
> However, passing laws and enforcing them are two very different activities and we cannot claim great success in the latter. (Gerald Caffrey, Director of the Legislative Reference Bureau, Milwaukee, Wisconsin.)
>
> Since we have had little if any court tests, and those only in city court, we have no body of law to which we could refer with regard to the enforcement of these laws. (Ray L. Montgomery, Assistant City Attorney, Salt Lake City, Utah.)
>
> Discussions with the Police Department have revealed relatively successful enforcement in regards to (unnecessary noise). . . . (Office of the City Manager, Medford, Oregon.)
>
> The police have sound meters but are not practiced enough for proficiency with them . . . the police have other priorities. (Randall Hurlburt, Office of Noise Abatement, Inglewood, California.)
>
> Enforcement of D.C. ordinances or anywhere else depends largely on the courts and the city attorney; that is, how seriously they wish the ordinance to be enforced. . . . There has been a 100% increase in complaints of noise since the beginning of the Metro construction. (Chief Industrial Hygienist, Washington, D.C.)

It is generally agreed by enforcement agents in local governments that citizens complaints would be more frequent if they knew where and how to register complaints, if they believed that such complaints would be effective, and if they were not fearful of becoming involved in ugly and non-productive disputes with neighbors or with "city hall." Inability to identify the specific sources of noise keep complaints about transportation noise, industrial complexes, and general ambient noise levels at a minimum.

Similarly, as Stuart Lewin points out in Law and the Municipal Ecology,[56] private suits are ineffective in reducing noise because (1) they depend on individual initiative, (2) litigation is expensive, (3) they are useless where separate sources cannot be identified, (4) courts are obviously reluctant to restrain business, government, or a government authorized group (e.g., public utility construction), and (5) litigation can seldom solve the urban, as distinguished from an individual's, noise problem.

Where, as is true in the majority of cases, "unnecessary" noise is not limited by quantified standards, enforcement is difficult because it must depend on the discretion of policemen or the chief of police, and in some cases laws have been struck down as unconstitutional on this basis.[57] On the other hand, decibel limits present technical difficulties in monitoring, again because of the difficulties of separating sources of noise and the lack of proficiency on the part of policemen or other enforcement agents (such as zoning inspectors) with sound meters. Excessive noise in the urban environment may come from multiple sources, no one of which is technically excessive, or as in the case of moving vehicles, it may be impossible to measure an individual noise in the context of which it is a part.

The cost of developing and operating a noise abatement program need not be very large, as will be discussed later, but it is a serious constraint on already strained city budgets, in large part because of the necessity of hiring trained personnel, who are in very short supply. A city official in Denver said:

> Although most city officials recognize the need to combat 'noise pollution' the problem of funding must first be solved. Denver, like most cities, is finding it increasingly difficult to finance even the most crucial programs. Consequently, we are not optimistic about instituting a program without Federal assistance. (Emphasis added)[58]

In May of 1969, incidentally, Denver submitted a request to the Department of Health, Education and Welfare for funds to purchase test equipment and train personnel for a comprehensive Noise Abatement Program. This was a joint application from the Health and Hospitals, Zoning, and Police Departments. It was approved by HEW but Congress did not appropriate the necessary funds for implementation.

The City of Seattle has had for ten years a Noise Ordinance which prohibits "loud" or excessive noise from a variety of sources including motor vehicles and which defines "the allowable level of noise" as 95 dBA. A comment by the City Traffic Engineer[59] points to one of the major difficulties which local governments have in achieving effective noise control, i.e., the setting of standards which are both effective and realistic (this difficulty will be mentioned again in connection with zoning law enforcement):

> Complaints of excessive noise have been checked by the prescribed method set forth in the Ordinance. Without exception monitored noise levels have been within the acceptable decibel range and no enforcement has been necessary.

> In view of the above, it appears that the 95 decibel limit is unrealistically high. Consideration is therefore being given to reduce the acceptable decibel level.

B. Comprehensive Noise Ordinances and Offices of Noise Abatement

The current trend is toward the establishment of municipal offices of noise abatement which are given full jurisdiction over comprehensive noise ordinances. A city with experience in this area is Inglewood, California, which has a comprehensive noise ordinance (Chapter 6, Municipal Code, effective November 6, 1970) and an Office of Noise Abatement[60] responsible for its enforcement. In addition to the usual provisions prohibiting noise which causes "distress, discomfort, or annoyance" to "a reasonable person of normal sensitiveness" from a variety of noise sources, the statute defines the ambient noise level above which excessive noise is to be measured, as:

Decibels	Time	Zone
45 dBA	nighttime	residential
55 dBA	daytime	residential
65 dBA	anytime	commercial
70 dBA	anytime	all other zones

Enforcement guidelines call for action against "continuous noise" (five minutes in any one hour) when it is 5 dBA above the ambient level as defined above, "intermittent noise" at 10 dBA above ambient, and "short duration noise" (lasting several seconds and occurring less than about once a minute) at 15 dBA above the ambient level. Monitoring is done by the Office of Noise Abatement at its own initiation or on the basis of complaints, but the Office must ask the County Attorney to issue a citation where persuasion, warnings, or police warning is not sufficient. The penalty may be a fine of up to $500 or six months imprisonment. In

Inglewood, the police are also equipped with sound meters, but because of the usual lack of proficiency and lack of time, the City Council is considering a move to certify the investigators in the Office of Noise Abatement as policemen so they can issue citations on their own initiative.

This Office feels that the enforcement of the general noise ordinance is workable and would be effective except that in Inglewood it is overwhelmed by the problem of aircraft noise, which is substantially preempted by the Federal government, and vehicle noise which is considered to be preempted by the State of California. Inglewood now has consultants working on improved zoning and building code provisions to reduce noise, and will attempt in the near future to place stipulations in all city contracts regarding noise standards for construction and other equipment.

Other cities in California are following the lead of Ingelwood; the California League of Cities has drafted a model noise ordinance which is receiving wide attention.

The Chicago City Council recently passed a broad new noise ordinance which has been attacked by some as unrealistic for setting noise levels that industries claim they cannot achieve, and by others for setting noise levels too high and exempting the two largest sources of noise in the city, the airports and the Transit Authority. This ordinance sets decibel limits for vehicles which will by 1980 force levels down to 75 dBA, sets decibel limits for power tools (80 dBA by 1980) and for some domestic tools such as lawn mowers (65 dBA by 1978) sets limits for recreation vehicles such as boats (76 dBA by 1975) and dune buggies (73 dBA) provides test measuring procedures and also provides for abatement as a nuisance.

The ordinance took effect July 1, 1971. Before this date the Department of Environmental Control conducted a public information campaign. It notified all manufacturers who sell products subject to noise limits of the requirements for certifying compliance. On June 26 the Department tested cars for citizens who feared that their vehicles could not meet the new standards. All trucking firms were tested at their garages before July 1.

Two three-man teams consisting of one policeman and two Department inspectors have been warning citizens (mostly horn-blowers) about the new law, which forbids the blowing of horns when the vehicle is not in motion or in any circumstances except in cases of emergency. On the first day of the new ordinance's effectiveness, 35 truckers and four horn-blowers were given tickets. There is not as yet any record of the disposition of these cases or of subsequent enforcement activities.

The enforcement plans after July 1 are to continue these two teams and begin giving tickets. A complaint phone has been established and publicized. However, the Department of Environmental Control has only 51 inspectors for all kinds of pollution control activities. Twenty-one of these inspectors and 24 workers from other city agencies have received a week's training in noise measurement and in the terms of the ordinance. The agency will concentrate on motor vehicle noise first, with a major emphasis on horn-blowing.

New York City also has an Office of Noise Abatement which has been in existance for about two years.[61] It has had no powers of enforcement but has tried to respond to complaints by seeking voluntary abatement (by field inspection and persuasion in major cases, by letters in minor offenses) and by referring stubborn cases to the health department or to the police. At times, the Office admits, they have been able to trade on the offender's vagueness about his liability under the law, or his fallacious belief that the Office has enforcement powers.

The Mayor of New York has now asked the City Council to pass a noise ordinance which although patterned on traditional nuisance law, will set decibel limits "wherever technology allows," most significantly on construction noise, which is a major offender in the city. If this ordinance is passed, the Office of Noise Abatement will proceed as rapidly as possible to formulate standards for major noise sources (e.g., air conditioners on roofs) and will set up licensing and inspection stations. The city is now asking all city agencies to write noise stipulations into all contracts, such as construction and services contracts, including refuse collection, urban redevelopment, and others. The Director of the Office also hopes to influence planning in redevelopment and to prevent the building of city housing in acoustically blighted areas.

The New York City Office of Noise Abatement will, according to these plans, have an enforcement staff and will not depend on other agencies for enforcement. The proposed ordinance goes further, however, and would also establish an administrative tribunal, so that noise citations would not add to the overload of the regular court system.

Experts in New York and California, and elsewhere, generally agree on the desirability of separating enforcement of noise ordinances from the work of the regular police force, which must give higher priority to crime and safety. Some states and municipalities are grouping in one agency the enforcement powers over all pollution laws.

The costs of establishing and operating an Office for Noise Abatement will be of interest to those cities which are considering alternative mechanisms for noise control. In Inglewood, a city of 90,000 population, the Office has consisted of two engineers, with a support staff of one secretary and one part-time technical assistant. The yearly budget is $60,000, which covers salaries, administrative costs, and equipment (about $50,000 in equipment purchased over a two and one-half year period), but which is clearly inadequate. In New York City, there was no separate budget for the Office of Noise Abatement during its first year, the money being allocated from other agencies. For the second fiscal year there was a $50,000 capital budget, salaries again being carried by other agencies. In the current fiscal year, $200,000 is allocated for capital equipment and $100,000 for salaries and other costs. The Office has also had a $50,000 planning grant from the U.S. Department of Housing and Urban Development, for the purpose of developing a methodology for carrying out a comprehensive noise survey of the city as a basis for future programs. If the proposed ordinance is passed, the NYC Office of Noise Abatement hopes to expand over a period of three years to include an inspection force of 40-50 people (vocational or technical school graduates) and five fully equipped mobile laboratories.

3.3.3. Zoning Ordinances and Building Codes

Some cities have placed in their zoning codes provisions limiting the generation of noise according to the type zone, or restricting the level of noise at property lines, or providing specifically for certain types of operations (for example, Chicago forbids the operation of any foundary which uses pneumatic hammers within two hundred feet of any residence). Such restrictions may be in terms of prohibiting excessive noise or may set decibel limits, but in either case the general pattern is most often one of sporadic enforcement only, usually on the basis of complaints. In most cases, the enforcement officers, generally building inspectors, attempt to achieve noise reduction by persuading the offender to reduce his noise, and citations appear to be rare. Those laws which provide decibel limits have usually been added to the zoning codes only recently; the following remarks are typical of replies to the survey:

> "To my knowledge we have not prosecuted any cases in court or had any significant administrative activity in the enforcement of the zoning code performance standards relating to noise since the enactment...in September 1969. Prior to that time, there were no such standards in the zoning law..." (Jacksonville, Florida)
>
> "We haven't had too much experience on the subject, our's is a relativity new regulation such that we haven't had time to develop factual statistics. Our regulation is jointly administered by this office (Division of Building Inspection) and the Health Department, principally on a complaint basis." (Dallas, Texas)
>
> "Washington's (noise standards) provision is virtually unenforceable...the sound reading since it is taken from the boundary between the commercial and residential area...There exists no case where this

> provision has been enforced." (James J. Fahy, Assistant Zoning Administrator, Washington, D. C.)

In test cases courts have generally allowed noise restrictions to stand where they are "non-discriminatory," but "unnecessary noise" provisions may be struck down as vague, while decibel limits require special equipment and training that building inspectors may not have.[62]

Municipalities urgently need guidance in writing into their zoning ordinances quantitative standards. Acoustics is a complex and sophisticated subject and trained personnel are in extremely short supply especially for local governments with their small budgets and competing demands. City ordinances very frequently incorporate standards which fall into one of two errors: they are so strict as to be unenforceable, and hence no real attempt is made to enforce them; or they are so lax as to be meaningless. It has already been pointed out, for example (Section 1.3.1), that noise limits at property line have been set very low in Binghamton, New York, so that it is technically illegal to carry on a conversation across property lines at normal voice levels. In fact, however, Binghamton's enforcement officer, the Building Inspector, does not have a sound level meter at his disposal (although one has been ordered)[63] and where complaints of excessive noise are received, he depends on persuasion and voluntary cooperation to get some noise reduction. Binghamton's law, in turn, was patterned on one adopted in Lake Success, New York.[64] In the Village of Lake Success, the need to enforce this ordinance has never arisen, since all occupants of the commercial and industrial zone (the only area to which the ordinance applies) are electronics and computer firms where noise generation is not a problem.

Such strict ordinances are useful and affective, however, to planning commissions or zoning boards which must receive and pass on new applicants for occupancy of such zones. In Lake Success, as a typical example, applicants must furnish evidence that they will in fact meet all performance standards set out in the zoning ordinance, including those for noise and vibration, this evidence to be developed at the expense of the applicant so that the burden of proof is on him rather than on the planning commission.

This provision suggests a method of enforcement of noise ordinances against existing property owners which has been frequently suggested,[65] but use of which is not evidenced in statutes examined for this study. This would be a statutory provision that when the city has evidence of violation of noise standards in the form of complaints, it will issue a warning; the property owner must then arrange for sound meter measurements by consultants acceptable to both the property owner and the city. If proof of violation results from these measurements, the violator is to pay the cost of the measurement and to correct the violation; if there is no violation, the city will then assume the cost of the measurement. This method, by placing the burden of proof on the property owner, may be a practical device for enforcement for small cities with tight budgets, few technically trained personnel, and a small number of potential offenders. However, whether courts would allow this shift of the burden of proof is debatable.

A number of local officials, in the course of this survey of noise legislation, expressed the need for national guidance in writing enforceable standards. For example, a building official in Dallas, Texas, wrote:

> As to these regulations in general, they are fraught with emotional overtones creating an untenable and frustrating situation. A national standard could hopefully be a solution to all our problems.[66]

City building codes typically have no provisions at all, either for external noise exclusion or for internal noise sources such as air conditioning and heating systems, elevators, appliances, or wall and floor insulation against noise transmission. New York City may have been the first to include noise standards in building codes.[67] This includes a Sound Transmission Classification for walls (said to be less restrictive than those generally used in European cities), Noise Criteria for air conditioning and heating systems and mechanical equipment, and an Impact Noise Rating for floors and ceilings (but surveys indicate that the INR is so high that 75% of tenants express dissatisfaction with the results).[68] No attempt is made to limit noise intrusion from hallways, lobbies, and noise generated by toilets and appliances.

The effective date after which applicants for a building permit for multifamily dwellings had to comply with these standards was December 6, 1969. For a year before this, applicants could choose to be under this code or an old code; needless to say, there was a rush to get under the older code and since December 6, 1969, when the new code became mandatory, none of the affected buildings have been completed and occupied. Therefore there is no experience with enforcement of these noise standards. When the buildings are completed each builder will be required to obtain an independent firm to conduct noise level tests which will be transmitted to the Department of Buildings. If not satisfied with the results or with the manner in which the tests were conducted, the Department of Buildings may send its own inspectors to conduct tests. However, there are only four such inspectors for the entire city, who were recently given a one-week training course in testing and enforcement. After the initial tests, the code will be enforced only on the basis of tenant complaint. There is no money specifically allocated to this program and the Department must fit these activities into its other activities and into its general budget. Acoustics societies have often advocated that residential and office buildings should be rated or classified according to some scheme of noise transmission,[69] but there appears to be no record of this having been tried.

3.3.4. Construction Noise

Some cities are moving to incorporate in their contracts for public construction stipulations concerning noise generation during construction but again they are hampered by the inability to formulate reasonable standards which are both feasible and effective. At this time some cities are including general instuctions to bidders to incorporate the cost of quieter equipment in job specifications. Although as a bi-state agency the Port of New

York Authority is immune from the proposed New York City Noise Ordinance, it will include such specifications in contracts for expansion of the bus terminal this year, as will the New York Metropolitan Transit Authority in its lengthening of subways. However, as yet there is not sufficient experience with such techniques to say how effective they will be.

Most cities also have "curfew" laws limiting construction to daytime hours. However, in the case of roads, subways, and the like, construction is often deliberately scheduled during night hours to alleviate traffic problems, and other construction too can often get official permission to continue during curfew hours on a plea of necessity or convenience.

FOOTNOTES

[1] Air Transport Association, *Estimated Number of Jet (Non-Propeller) Aircraft in the Scheduled U.S. Airline Fleet*. (As of June 30 for each year), Washington, D.C., (1971).

[2] Federal Aviation Regulations, 14 C.F.R. §36

[3] Interview with Sam Austin, FAA Office of Environmental Planning, in Washington, D.C., August 17, 1971.

[4] Implementation of Sec. 102(2)(c) of the National Environmental Policy Act, etc. DOT Order 5610.1, October 7, 1970.

[5] Application, Interpretation and Dissemination of Noise Exposure Forecast (NEF) data, FAA Draft Order (1971).

[6] Requirement for Public Hearings in the Airport Development Aid Program, FAA Advisory Circular 150/5100-7 (January 4, 1971).

[7] Telephone interview with Herter Rupert, DOT Office of Environmental Policy, Washington, D.C., August 10, 1971.

[8] National Environmental Policy Act of 1969 §102c, 42 U.S.C. §4332

[9] H. Rupert, supra r. 7

[10] Department of Transportation, Noise Guidelines Report (Draft).

[11] *Ibid*.

[12] *Ibid*.

[13] Quarterly Report on the Federal Aid Highway Program, FHWA 601 (June 30, 1971).

[14] 33 Fed. Reg. 14259(1968).

[15] Safety and Health Standards for Federal Supply Contracts, 34 Fed. Reg. 7949(1969).

[16] *Ibid*.

[17] *Ibid*.

[18] *Ibid*.

[19] *Ibid*.

[20] Interview with John O'Neill, Chief of Industrial Standards Division, Department of Labor, Washington, D.C., July 19, 1971.

[21] Interview with Ray McClure, Industrial Hygienist, Office of Compliance, Department of Labor, Washington, D.C., July 19, 1971.

[22] *Ibid.*

[23] U.S. Department of Health, Education and Welfare, *Environmental Health Planning*, Washington, 1971, p. 47.

[24] Report of the Panel on Noise Abatement, U.S. Department of Commerce, *The Noise Around Us*, at 70, (COM 71-00147, 1970).

[25] Telephone interview with A. Maier, Office of Compliance, Department of Labor, Washington, D.C., August 18, 1971.

[26] Department of Labor, *National Summary of Monthly Noise Control Reports Since May 1969*.

	Totals thru Feb. 1971	Percentages
A. Total Inspections	5979	100
B. Inspections Where Noise Was Measured	1259	21
C. Total Firms With an Acceptable Hearing Conservation Program	289	23
D. Firms Cited for Noise	115	9.1
E. Firms Referred to Regional Solicitor	14	1.1
F. Hearings and Pre-Hearing Conferences Held on Noise	8	0.64
G. Inspection Reports Received in Washington	173	
H. Letters of Notification or Citation Received in Washington	115	

[27] J. O'Neill, supra. n. 20

[28] R. McClure, supra. n. 21

[29] Interview with Nick Fannick, Industrial Hygienist, from the Health Division of the Office of Coal Mine Health and Safety, Bureau of Mines, Washington, D.C., July 22, 1971.

[30] *Ibid.*

[31] Mandatory Health Standards - Underground Coal Mines, 36 Federal Register 12739 (1971).

[32] Federal Coal Mine Health and Safety Act of 1969 §103(a), 30 USC 803 (1969).

[33] Letter from W. A. Boyle to Elburt F. Osborn is from the files of Dr. Lorin E. Kerr, Office of Occupational Health, United Mine Workers of America.

[34] _Ibid._, July 20, 1971

[35] Telephone interview with N. Fannick, _Id_. August 25, 1971.

[36] Letter from W. A. Boyle to Elburt F. Osburn, July 20, 1971.

[37] Cal. P.U.C. §21669 as ammended by AB645, September 4, 1969. Information regarding enforcement and regulation of this Act is based on discussions with Mr. Joseph Crotti, Director of Aeronautics, State of California; Mr. Richard Dyer, Assistant Engineer, California Department of Aeronautics; Mr. Bert Lockwood, Assistant General Manager, Los Angeles International Airport; and Mr. Nicholas Yost, Deputy Attorney General, Environmental Affairs, State of California.

[38] Minutes of the California Law Revision Commission, July 15, 16, 17, 1971, p. 2.

[39] Information in this section is based on discussions with L. Achitoff, A. A. Odell, H. B. Johnson, D. Daniels, I. Muirhead, and J. Marshall, of the Port of New York Authority.

[40] Potter, Stannard M., "Opening Remarks, Panel on Community Noise Control, Noise as a Public Health Hazard," Reports of the American Speech and Hearing Association, No. 4, June 1968.

[41] This section draws on discussions with Mr. Ross A. Little, Standards Engineer, Engineering Sections, California Highway Patrol.

[42] The Highway Patrol has forbidden the sale of 40 motorcycle models but none as yet on the basis of noise emissions.

[43] _Noise Survey of Vehicles Operating on California Highways_. (Advance Copy, unedited, June 1971)

[44] Mr. David, Head of Vehicle Inspection Section, Law Enforcement Division of the State Highway Department, in a telephone conversation, July 29, 1971.

[45] A bill now before the California Legislature AB 1043 would set noise standards for pneumatic tires manufactured and sold after January 1, 1972.

[46] Report of the Sub-Council on Leisure Time Product Noise, National Industrial Pollution Control Council (U.S. Government Printing Office), May 1971.

[47] Letter from Thomas A. Martin, Lt. Col. (Ret.) USAF, Noise Control Officer, City of Boulder, July 9, 1971.

[48] "For legal purposes a graph is used which displays the actual reading of the violations. A General Radio 1558 electronic home produced interfact and an Esterline Angus M.A. DC graph is used. General Radio is scheduled to produce this type of equipment for less than $1,000 in the near future." (Ibid.)

[49] Baron, Robert Alex, The Tyranny of Noise at 197-200, (1970).

[50] Letter from Mr. Jamie Moore, Chief of Police, July 16, 1971.

[51] Detective Gene Kiser, Public Relations Officer, for Gerald T. Dunbar, Chief of Police, July 22, 1971.

[52] Letter from Jerold Lax, City Attorney, City of Ann Arbor, July 28, 1971.

[53] Letter from Joseph A. Canale, Assistant City Attorney, City of Memphis, Tennessee, July 28, 1971.

[54] This is a city agency receiving funds from New York City capital budget, but managed by and receiving operating funds from the Metropolitan Transit Authority, a state agency. Information in this section is based on discussions with Mr. Anthony Paolilli of the N.Y.C. Transit Authority.

[55] Information about Inglewood based on discussions with Mr. Randy Hurlbut, Chief, Office of Noise Abatement.

[56] See Stuart Lewin, Alan H. Gordon, and Channing Hartelius, Law and the Municipal Ecology, N.I.M.L.O. Report 156, Part II at 55-90 (1970).

[57] Ibid.

[58] Letter from Lewis J. Alverson, Sergeant, Research and Development Section, Department of Police, City and County of Denver.

[59] Letter from M.R. Mitchell, P. E., City Traffic Engineer, Department of Engineering, City of Seattle, Washington, July 28, 1971.

[60] Now a part of the Division of Buildings, the Office will soon become the Office of Environmental Standards in the Planning Department, but it is expected that 90% of the work will still be concerned with noise abatement.

[61] Information in this section is based on discussions with Mr. Royce Young, New York City Office of Noise Abatement.

[62] See Lewin, supra. note 56.

[63] Binghamton, New York, Zoning Ordinance, December 15, 1969; also, interview by telephone with Mr. Valado, Director of Planning, Zoning, and Code Enforcement, Binghamton, New York, July 28, 1971.

[64] Also, interview by telephone with Mr. Douglas Sanford, Building Inspector, Village of Lake Success, New York, August 2, 1971

[65] According to David Portman, Zoning Consultant, Fred Clark Associates, Rye, New York, telephone interview, July 28, 1971.

[66] Letter from J. Tom Jones, Building Official, Department of Public Works, Division of Building Inspection, City of Dallas, Texas, July 28, 1971.

[67] See Baron, *supra*. note 49, at 125ff.

[68] *Ibid*.

[69] Interview with Dr. A. Young, Assistant Director, Sensory Sciences Group, Stanford Research Institute, Menlo Park, California.

4 PROPOSALS AND PROBLEMS IN THE REGULATION AND ABATEMENT OF NOISE

4.1 AIRCRAFT NOISE: PROBLEMS AND POTENTIAL AVENUES FOR CONTROL

4.1.1 Continuing Critical Problem Areas

It would appear that over the next few years the aircraft noise controversy may coalesce around several fundamental issues. While no one can say with certainty how the future will unfold some suggestions are given below as to what these fundamental issues might be.

A. Retrofit

At the present time Federal aircraft noise type certification standards apply only to what might be called the "new generation" of aircraft -- that would include in particular the Boeing 747, the McDonnel-Douglas DC-10 and the Lockheed L-1011.[1] In view of the fact that the L-1011 has not yet been certificated for regular commercial service, the DC-10 has begun regularly scheduled service only within the last few weeks, and the 747 has been given a two-year exemption from full compliance with Federal aircraft noise standards,[2] it will probably be some time before these Federal standards have any significant effect on aircraft noise abatement.

In the meantime, nothing is being done to reduce the noise of the current jet fleet of 707's, DC-8's, 727's and so on, even though these aircraft will continue to make up a substantial portion of the commercial jet fleet for a number of years to come.

The National Aeronautics and Space Administration conducted a three-year research program which demonstrated that application of special acoustical material to the engine nacelles of 707's and DC-8's could noticeably reduce the noise of these aircraft on takeoff and could substantially reduce the noise of these aircraft on approach.[3] The Federal Aviation Administration is currently considering requiring the airlines to "retrofit" the engine nacelles on current jet aircraft with this special acoustical material,[4] and a bill has been introduced in Congress which would, if enacted, require in effect that current generation aircraft must be acoustically retrofitted or retired from service by January 1, 1976.[5] A study of the economic impact of an acoustical retrofit program has revealed, however, that such a program could cost the airlines 800 million dollars,[6] and the airlines, therefore, have strongly opposed it.

B. Land Use Control Option

Another approach to the abatement of aircraft noise is the development of compatible land usage and land use controls in the more severely noise-impacted areas around the nation's airports. It has been argued that replacement of noise-sensitive properties near airports with noise-compatible uses is the only effective long-term solution to the aircraft noise problem and that the noise problem would not even exist today if responsible planning and land use control had been instituted 20 years ago.

The requirement of assurances from local airport authorities that appropriate action would be taken to "reasonably restrict" the use of land near airports to noise-compatible uses has been a part of the Federal-aid-to-airports program since 1964.[7] The requirement has never been effectively applied, however.

Now there is evidence that the Federal Aviation Administration may be moving toward a tougher position on compatible land usage around airports. The FAA held a special meeting with aviation industry representatives in June, 1971, to discuss an FAA Draft order which reportedly would officially endorse the Noise Exposure Forecast methodology as the method for measuring noise exposure around airports.[8] At the present time it is an open secret that areas within the 30 NEF contour are widely believed to be excessively noisy and that areas within the 40 NEF contour are widely believed to be not suitable for residential property.[9] If the FAA were to adopt these criteria as official FAA policy, it might force local airport authorities to acquire large parcels of noise-impacted residential property near airports, particularly in the 40 NEF areas, or to seek a reduction in scheduled air carrier operations, as a means of shrinking noise exposure areas.

The manager of Los Angeles International Airport has charged that if the FAA Draft Order is adopted the costs of land acquisition around L.A. International could exceed three billion dollars.[10] The L.A. manager has also stated that in order to shrink the 40 NEF contours at L.A. the number of daily flights between Los Angeles International and New York would have to be cut from 76 to 16 and the number of daily flights between Los Angeles and San Francisco would have to be drastically slashed.[11]

The situation at John F. Kennedy International Airport in New York is reflected in the results of a recent study of that airport conducted for the MANAPS program, a joint aircraft noise policy study by the Department of Housing and Urban Development and the Department of Transportation:[12]

> Within the 1975 noise exposed areas, it is estimated that it would cost $0.6 billion for the redevelopment (acquisition and demolition) of residences, schools and hospitals in the noisiest locations (40 NEF) and $0.7 billion for sound insulation of residences, schools, and hospitals in less noisy areas (30 NEF). Also, 50,000 persons would be displaced from their homes. If such an area were cleared for compatible development, all of the anticipated industrial development in Brooklyn, Queens and Nassau for the next 20 years would not be enough to use the acreage made available.[13]

C. Production Models and Compatibility of Surrounding Structures

Several suggestions have been made for somewhat more modest lines of attack on the aircraft noise problem. Meynell, for example, would focus immediate attention on noise standards for yet-to-be constructed aircraft of the medium range class such as the BAC-111, the DC-9, the 727 and the 737. As he points out, aircraft such as these have at present "indeterminate production runs ahead of them which bodes ill for the peace and quiet of airport neighbourhoods for many years to come."[14]

Tondel on the other hand sees a need for land use control of open space areas near airports:

> There has been a plethora of planning. Much money and effort have been devoted to estimating how many miles "noise affected areas" extend beyond the airport. There have been numerous studies, most of which add to the store of knowledge. However, the commonsense approach to this problem -- namely, keeping open those areas nearest approach paths which are still open -- has been for the most part ignored.[15]

In connection with this last suggestion, it should be noted that the Department of Housing and Urban Development (HUD) has been trying for some time to prohibit the creation of noise-sensitive uses of property near airports. As early as 1961, the Federal Housing Administration (now a part of HUD) took official recognition of the fact that certain high-noise areas around airports were not acceptable for Federally insured home loan mortgages for proposed new residential development.[16] In 1965, the FHA further took the position that areas falling within Zone 3 of the CNR contours (roughly equivalent to 40 NEF) were not acceptable for proposed new residential development.[17] Unfortunately, these actions have not had a substantial impact on the problem.

The Department of Housing and Urban Development, however, has recently issued a policy circular on noise abatement and control, that applies to all of HUD's programs, including in particular Federal Home Loan Mortgage Insurance and Urban Renewal, (See Section 1). Insofar as aircraft noise is concerned, the new policy circular declares 40 NEF areas to be "unacceptable" for new residential construction and 30 NEF areas to be "normally unacceptable" for new residential construction. Under the new circular, exceptions to the above rules will be permitted, in the case of 30 NEF, only with the approval of the appropriate HUD Regional Administrator, and in the case of 40 NEF, only with the approval of the Secretary of Housing and Urban Development. If rigorously enforced, this new policy may have a significant effect on preservation of open space areas near airports for compatible uses.

D. Night Curfews

Public pressure will continue for the imposition of night curfews which have the twin virtues of simplicity and effectiveness. They are simple in the sense that they require no new programs or technology, but only an administrative decision by the appropriate official. They are effective because they apply to the most critical hours of the night when people are most noise-sensitive, and obviously no aircraft noise abatement technique could be more effective than the simple absence of planes flying overhead. The aviation industry, however, strongly dislikes the restrictive impact of night curfews on system capacity and operations. Testimony from the recent case of Lockheed Air Terminal, Inc., et al. v. The City of Burbank,[18] summarized below by Christopher,[19] illustrates the problem:

> Testimony on behalf of one of the air carriers at the Burbank trial indicated that if comparable curfew ordinances were imposed upon all airports served by that airline, its cost would be increased by twenty-five percent to provide the same service. The testimony also indicated that forty-eight percent of the airmail moves during curfew hours, and that over forty percent of the air cargo moves during those same hours. Other testimony, based upon a study of the Official Airline Guide, showed that there were 1009 daily flights from airports serving certified air carriers which would have to be cancelled if the Burbank curfew were to be imposed on a nationwide basis.

E. Airport Development

The Airport and Airway Development Act of 1970 requires that if an airport development project involving airport location, a major runway extension, or a runway location is found to have an adverse impact on the environment the Secretary of Transportation can approve such a project only after he has rendered a finding, in writing, following a full and complete review, which shall be a matter of public record, that no feasible and prudent alternative exists and that all possible steps have been taken to minimize such adverse effects.[20] Although it is too early to determine what practical effect this new provision will have on the aircraft noise problem, it is interesting to view this provision in terms of the recent decision of the U.S. Supreme Court in Citizens to Preserve Overton Park, Inc. v. Volpe.[21]

Overton Park involved an attempt to construct a six-lane interstate highway through a public park in Memphis, Tennessee. The action was based on section 4(f) of the Department of Transportation Act of 1966 [and on section 138 of the Federal-Aid Highway Act of 1968 which is identical to section 4(f)]. Section 4(f) provides as follows:

> It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed. After August 23, 1968, the Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use.[22]

The very close similarity between section 4(f) and section 16(c)(4) of the Airport and Airway Development Act of 1970,[23] quoted in full below, is apparent:

> It is declared to be national policy that airport development projects authorized pursuant to this part shall provide for the protection and enhancement of the natural resources and the quality of environment of the Nation. In implementing this policy, the Secretary shall consult with the Secretaries of the Interior and Health, Education, and Welfare with regard to the effect that any project involving airport location, a major runway extension, or runway location may have on natural resources including, but not limited to, fish and wildlife, natural, scenic, and recreational assets, water and air quality, and other factors affecting the environment, and shall authorize no such project found to have adverse effect unless the Secretary shall render a finding, in writing, following a full and complete review, which shall be a matter of public record, that no feasible and prudent alternative exists and that all possible steps have been taken to minimize such adverse effect.[24]

In reversing the decision of the Sixth Circuit Court of Appeals,[25] which had upheld construction of the highway, and in remanding the case to the District Court for a "plenary review" of the factual basis for the Secretary of Transportation's decision to permit construction of the highway, the Court placed the following interpretation on section 4(f):

> Section 4(f) of the Department of Transportation Act and §138 of the Federal-Aid Highway Act are clear and specific directives. Both the Department of Transportation Act and the Federal-Aid to Highway Act provide that the Secretary "shall not approve any program or project" that requires the use of any public park land "unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park..." 23 U.S.C. §138 (Supp. V); 49 U.S.C. §1653(f) (Supp. V). This language is a plain and explicit bar to the use of federal funds for the construction of highways

> through parks -- only the most unusual situations are exempted.[26] (Emphasis added)

In a concurring opinion, Justices Black and Brennan stated this position even more emphatically:

> It is apparent from the Court's opinion today that the Secretary of Transportation completely failed to comply with the duty imposed upon him by Congress not to permit a federally-financed public highway to run through a public park "unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park..." 23 U.S.C. §138; 49 U.S.C. §1653(f). That congressional command should not be taken lightly by the Secretary or by this Court. It represents a solemn determination of the highest law-making body of this Nation that the beauty and health-giving facilities of our parks are not to be taken away for public roads without hearings, fact-findings and policy determinations under the supervision of a Cabinet officer -- the Secretary of Transportation.[27]

The Overton Park case suggests, therefore, that when Congress states, as it did in the Airport and Airway Development Act of 1970, that major airport development projects (new airports, or runway locations and extensions) which have adverse effects on the environment cannot be approved unless the Secretary of Transportation makes a formal finding that "no feasible and prudent alternative exists and that all possible steps have been taken to minimize such adverse effect,"[28] the Congress is establishing a very substantial standard by which to measure administrative decision-making by the Secretary. Moreover, it would appear that when a major airport development project (i.e., a new airport or runway location or extension) has significant unavoidable adverse environmental effects, the project normally cannot be continued and "only the most unusual situations are exempted."[29] Whether or not this is the view ultimately taken by the courts, section 16(c)(4) of the Airport and Airway Development Act of 1970[30] should be a productive source of litigation over the next few years.

4.1.2 Problems and Perspectives: Intergovernmental Regulatory Relationships

A number of interesting and difficult questions are raised by the efforts of governments at various levels -- local, State, national and international -- to regulate aircraft noise. The discussion below will deal only with the questions of conflict and preemption between the Federal government on the one hand and State and local governments on the other. It should be noted in passing, however, that there are a number of interesting questions involving the relationship of regional authorities to the State government and to other units of local government and the relationship of State government to local municipalities in charter and noncharter states. These questions are exclusively a function of State law, and the answers for any particular airport situation would depend upon the laws of the particular state involved.

It should also be noted in passing that some very perplexing problems may arise if local authorities, particularly local airport authorities, attempt to apply local aircraft noise regulations to aircraft that are listed on the national registry of another country and which operate into and out of the United States. The Port of New York Authority, for example, has prevented foreign certificated aircraft from landing at John F. Kennedy International Airport when the air carrier involved failed to fully demonstrate in advance that its aircraft complied with the Port Authority's noise regulations.[31] On the other hand, the Supreme Judicial Court of Massachusetts recently ruled in an advisory opinion that a bill pending before the Legislature that would prohibit the landing or takeoff of any civil supersonic aircraft in Massachusetts that did not meet a specified maximum noise level involved an attempt by the State of Massachusetts to exercise powers that had been preempted by the Federal government (See Section 2.4.1). The court noted but did not decide, however, the question of whether an airport proprietor could exercise this power as the Port of New York Authority has done in New York.

In any event, where local aircraft noise regulation of foreign certificated aircraft is involved it is well to remember, as Justice Holmes pointed out more than fifty years ago, that the power of State and local governments stands in a different relationship to the power of the Federal government when the Federal government is acting pursuant to treaty obligations of the United States than when the relationship that exists involves solely the question of the division of power within the Federal system under the Constitution.[32]

A. Federal Government Relationships to Local Governments Not Owning or Operating An Airport

This section discusses the law applicable to aircraft noise regulations adopted by local government authorities that do not own or operate the airport in question. The special rules applying to airport authorities are discussed below in another section.

It is well established that local cities and municipalities adjacent to airports cannot enforce ordinances that effectively prohibit aircraft overflights because such ordinances directly conflict with the regulation of the flight of aircraft by the Federal government.[33] In the three cases of this kind that have come before the courts, two involved city ordinances prohibiting flight over the city below a specified altitude.[34] The third involved a city ordinance that prohibited activities generating noise in excess of specified maximum limits; the court, however, found that the real effect of the latter ordiance was the same -- to prohibit the flight of aircraft over the city.[35] In all three cases, local communities adjacent to airports had attempted to gain relief from aircraft noise by prohibiting aircraft overflights. In all three cases, the city ordinances were invalidated by the courts on the ground that the ordinances directly conflicted with the Federal law regulating the flight of aircraft. Two of the opinions[36] also discussed the doctrines of preemption and burden on interstate commerce. When a validly enacted Federal law conflicts with a State law or local ordinance the Constitution specifies that the Federal law must prevail.[37]

The Lockheed case, also discussed in Section 2.4.1, supra, raises somewhat different questions. The City of Burbank, California, had enacted a city ordinance which prohibited jet aircraft from taking off between the hours of 11 P.M. and 7 A.M. from Hollywood-Burbank airport. The Hollywood-Burbank airport is owned, not by the City of Burbank, but by Lockheed Air Terminal, Inc., a private corporation. The airport does, however, in effect serve as a public airport, receiving scheduled air carrier service by both interstate and intrastate airlines.

In an action for declaratory relief and to enjoin the enforcement of the ordinance, the U.S. District Court for the central district of California ruled that the ordinance was invalid, on the ground that the power to enact such an ordinance had been preempted by the Federal government's regulation of air commerce and on the ground that the ordinance constituted an unreasonable burden on interstate commerce.[38]

In finding preemption, the court exhaustively reviewed the involvement of the Federal government in the regulation of air commerce and concluded:

> From the broad scope of Federal statutes and regulations governing and controlling the use of air space and of air traffic, it would appear that Congress intended to centralize full and dominant control of the navigable air space in the Federal Government so as to provide for its safe and most efficient use.[39]

The argument of the court is not wholly satisfying, however. In particular, the court quoted with approval from the following paragraph contained in the report of the Senate Commerce Committee[40] on H.R. 3400 which ultimately became Public Law 90-411,[41] the 1968 aircraft noise abatement act:

> The courts have held that the Federal Government preempts the field of noise regulation insofar as it involves controlling the flight of aircraft. Local noise control legislation limiting the permissible noise level of all overflying aircraft has recently been struck down because it conflicted with Federal regulation of Air Traffic. American Airlines v. Town of Hempstead, 272 F. Supp. 226 (U.S.D.C., E.D., N.Y., 1966). The court said at 231, "The legislation operates in an area committed to Federal care, and noise limiting rules operating as do those of the ordinance must come from a Federal source." H.R. 3400 would merely expand the Federal Government's

> role in a field already preempted. It would not change this preemption. State and local governments will remain unable to use their police powers to control aircraft noise by regulating the flight of aircraft.[42]

The court, however, did not discuss or even quote the paragraph of the Senate Report that immediately followed the one quoted above. This second paragraph is quoted below:

> However, the proposed legislation will not affect the rights of a State or local public agency, as the proprietor of an airport, from issuing regulations or establishing requirements as to the permissible level of noise which can be created by aircraft using the airport. Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory.[43]

In light of this very clear statement of congressional intent, it is difficult to see how the court could arrive at the conclusion, at least, insofar as aircraft noise is concerned, that Congress intended to completely preempt the field.[44]

The court was on much firmer ground in ruling that the Burbank ordinance was invalid because it constituted an unreasonable burden on interstate commerce. On this point the court said:

> The noise problem created by jet aircraft is well known and it appears to the Court that a curfew Ordinance, if valid, would promptly be adopted by virtually all cities surrounding airports. Considered singly, such an Ordinance might not impose an unlawful interference with interstate commerce in all cases. However, considered on a national level, the Ordinance could not stand.[45]

To support this conclusion, the court had the fact adduced from the testimony at the trial that, if curfew ordinances similar to the Burbank ordinance were imposed at all of the nation's air carrier airports, 1009 daily flights would have to be cancelled.[46] One air carrier serving Hollywood-Burbank airport also testified that if curfew ordinances similar to the Burbank ordinance were adopted at all of the airports which it serves, its costs would be increased by 25% to provide the same service.[47] Testimony at the trial also revealed that 48% of the nation's airmail moves during the curfew hours and 40% of the air freight.[48]

Whether or not the court assessed these facts correctly, they provided a reasonable basis for the court's decision.

B. Federal and State Regulatory Relationships

California is the only state which has enacted legislation authorizing the regulation of aircraft noise.[49] An argument supporting the authority of the states to legislate in this field may be found in a 1970 Opinion of the Attorney-General of California.[50]

The California Attorney-General makes essentially two arguments in support of state authority to regulate aircraft noise: (1) the Federal government has occupied a portion of but has not prempted the entire field of regulating aircraft-produced community noise, and therefore State and local governments may legislate in the field if there is no conflict with federal statutes or regulations; and (2) State and local governments which are airport proprietors may regulate aircraft-produced community noise in their capacity as proprietors despite Federal statutes or regulations covering the field.[51] (The California Attorney-General also makes an argument that State and local governments may regulate aircraft-produced community noise by land use controls such as airport siting and zoning, but this point is generally accepted).

1. Alternative Perspective Number One

The California Attorney-General concedes that State and local laws or regulations in direct conflict with Federal aircraft noise laws or regulations must yield. He also notes that several decisions have contended that the Federal government has preempted the field of aircraft noise regulation, but he points out that the California Supreme Court has indicated in Loma Portal Civic Club v. American Airlines, Inc.[52] that it is not convinced that the Federal government has preempted the field. The California Attorney-General concludes, therefore, that in the absence of a court test to resolve the conflicting and uncertain authorities, preemption of State authority to regulate aircraft noise where the regulations are not in direct conflict with Federal law cannot be assumed.

One difficulty with this argument is that it is hard to conceive of any State law which, if applied to aircraft in flight, would not be in direct conflict with Federal law given the extensive nature of the Federal regulation of the flight of aircraft. The extensiveness of this Federal regulation is documented in the following quotation from Lockheed Air Terminal v. The City of Burbank:[53]

> Unless otherwise authorized by FAA Air Traffic Control, a pilot operating within an airport traffic area must maintain two-way radio communication with the control tower (FAR 91.86(6)). He is further required to comply with all clearances and instructions that may be issued by Air Traffic control (FAR 91.75 (b))......Except when in direct communication with the control tower

> each regularly scheduled air carrier is required by its Operating Specifications to operate its jet aircraft in accordance with FAA Instrument Flight Rules ("IFR"). When not under the control of an FAA airport control tower, aircraft operating under IFR are under the direct control of an FAA Air Route Traffic Control Center and are required to comply with the clearances received from that facility (FAR 91.115, 91.75(a)).[54]

In view of this extensive involvement of the Federal government in the regulation of the flight of aircraft, it would appear that the only area available for nonconflicting State regulation would be a regulation which, especially in its enforcement, applies to aircraft while on the ground and which does not require flight operations that conflict with Federal law.

2. Alternative Perspective Number Two

The proprietorship concept, while applicable, will be discussed subsequently. At this point, however, it is important to note an argument that has been made concerning the application of the proprietorship concept to State regulation of aircraft noise. It has been suggested[55] that, assuming arguendo that a local airport authority has the power to regulate aircraft noise at its own airport in its capacity as proprietor of the airport, it does not necessarily follow that the state may direct the airport authority to do so. That may be essentially correct.

On the other hand, if a state could not by some means (state constitutional amendment, if necessary) direct an airport authority to act, it would mean that the local government owning the airport possessed powers not possessed by the state. Yet the state is the source of the power, and indeed the very existence, of the local government entity.

It has been held that the Federal government may make a municipality its licensee and thereby confer upon it powers to act that have been denied to it by the state, although the extent of these powers is somewhat uncertain.[56] It would be a novel doctrine, however, that suggested that the Federal government could by preemption effectively confer powers on a municipality, a creature of the state, while denying those same powers to the state itself.

In other words, a local government entity derives its powers from the state of which it is a part. In certain cases, where states have denied to local government entities the necessary incidents of legal existence thereby making it impossible for a local government entity to act under a valid Federal license, it may be argued that the license is sufficient authority to exercise those powers of State law which are necessary for carrying out the licensed activity. If it were otherwise, many Federal-aid programs to cities would be subject to the whims of the various states. Such a doctrine does not change the basic nature of the Federal system. It merely prevents the states from obstructing valid Federal programs.

The doctrine contended for above, however, would recognize powers over aircraft noise in local government entities that are not possessed by the states. In this case, the Federal government would not be merely removing a capricious obstruction to the normal exercise of State powers by a local government entity but would actually be conferring Federal powers acquired by preemption of State authority on subordinate political subdivisions of the state. Such action would appear to be inconsistent with the Federal system contemplated by the Constitution.

C. Proprietary Powers and the Control of Aircraft Noise

The Senate Commerce Committee in its report[57] on H.R. 3400 which ultimately became Public Law 90-411,[58] the aircraft noise abatement act of 1968, made the following observations about the power of local airport authorities to regulate aircraft noise:

> (T)he proposed legislation will not affect the rights of a State or local public agency, as the proprietor of an airport, from issuing regulations or establishing requirements as to the permissible level of noise which can be created by aircraft using the airport. Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory.[59]

This philosophy is also reflected in the FAA's preamble to FAR Part 36, the Federal government's aircraft noise type certification regulations, as published in the Federal Register:

> Compliance with Part 36 is not to be construed as a Federal determination that the aircraft is "acceptable," from a noise standpoint, in particular airport environments. Responsibility for determining the permissible noise levels for aircraft using an airport remains with the proprietor of that airport. The noise limits specified in Part 36 are the technologically practicable and economically reasonable limits of aircraft noise reduction technology at the time of type certification and are not intended to substitute federally determined noise levels for those more restrictive limits determined to be necessary by individual airport proprietors in response to the locally determined desire for quiet and the locally determined need for the benefits of air commerce.[60]

The proprietorship concept of aircraft noise control by airport authorities had its genesis with the Port of New York Authority's 112 PNdB limit on takeoffs at John F. Kennedy International Airport. The basis for the Port Authority's 112 PNdb limit has been explained by the Port Authority's General Counsel:

> Port Authority restrictions are not based on police power considerations but rather upon the inherent right of a landowner to control, either by contract or otherwise, the activities of those who use his facilities -- activities for which...the airport operator might be held liable to property owners in adjacent communities. It seems clear that the Port Authority possesses the power to require its airline tenants to refrain from using its facilities in such a way as to subject it to money damage claims brought by airport neighbors or otherwise to engage in activities that will prove detrimental to its good name or to that of its airports. There is, of course, no conflict between Port Authority restrictions and FAA regulations. An air carrier must comply with both. In fact, the Port Authority requires air carriers who operate from its air terminals to comply fully with all Federal rules and regulations.[61]

The Port Authority's power under the proprietorship doctrine to control aircraft noise has been tested only once in court,[62] and even then the test occurred under carefully circumscribed conditions. The Port Authority had closed two runways at La Guardia Airport to permit extensions of the runways to be constructed. When the extension of one of the runways was completed prior to the completion of the extension of the other runway, the Port Authority withheld permission to use the first runway until the second was completed on the grounds that concentrated use of the single completed runway would create an unacceptable aircraft noise problem. When a number of airlines deliberately used the completed runway in violation of the Port Authority's directive, the Port Authority sought an injunction to prevent further violations.

In granting injunctive relief, the U.S. District Court for the Eastern District of New York ruled that the Port Authority's restrictions on the use of the runway did not conflict with the regulation of air traffic by the Federal Aviation Administration, even though the FAA had indicated that it believed that the runway could be safely used.[63] The court stressed the fact, however, that the Administrator of the FAA had very carefully and very clearly stated that the FAA was not directing that the completed runway be used.[64]

In the only other case touching upon the proprietorship concept, the District Court for the Eastern District of New York ruled that the power to levy a $25 takeoff fee imposed on general aviation aircraft at the Port Authority's three air carrier airports for the purpose of stimulating a shift in general aviation traffic to other airports in the New York area had not been preempted by the FAA's regulation of air traffic and the FAA's special air traffic rules for high density airports.[65]

It would appear, therefore, in light of all of the foregoing that so long as the Congress and the Federal Aviation Administration maintain their positive attitudes toward the regulation of aircraft noise by airport authorities, and so long as airport authorities do not place themselves in direct conflict with FAA safety regulations, the regulation of the aircraft noise by airport authorities is not prohibited, even though the FAA is also regulating in the same field.[66]

The questions of "conflict" and "preemption" do not necessarily exhaust the inquiry, however. The Constitution gives the Congress power to regulate interstate and foreign commerce.[67] The states may also regulate that commerce[68] but not when such regulation directly conflicts with validly enacted federal law[69] and not when Congress has "preempted" the regulation of that particular type of activity.[70] Yet, even though a particular act of regulation over interstate commerce is not in direct conflict with Federal law and even though the area of regulation has not been preempted by the federal government, the State regulatory act may be so burdensome on interstate commerce that it is prohibited by the Constitution.[71] In particular this is true when the activity being regulated is one requiring national uniformity of regulation.[72]

It has already been held by a U.S. District Court that a night curfew on operations at a single airport must be enjoined because if it were adopted at all other air carrier airports across the country, the free flow of interstate air commerce would be substantially impeded.[73] While this single decision does not constitute a controlling precedent, the concept is persuasive.

Airlines, because of their complex scheduling arrangements, are particularly vulnerable to inconsistent local requirements. Airlines are normally granted routes which require them, for example, to depart from City A, stopover in City B and terminate in City C. If the aircraft which departed from City A could not land or takeoff at City B because of aircraft noise restrictions, and if the aircraft which could land and takeoff from City B could not land and takeoff from City C because the aircraft noise requirements there were inconsistent with the aircraft noise requirements in City B, the airline would find itself in a tremendous quandary.

The better view would seem to be, therefore, that local aircraft noise regulations attempting to alleviate local problems nonetheless have a significant and substantial national impact and that to prevent the great burdens that would be imposed on interstate commerce by inconsistent local regulations national uniformity of regulation is required.[74]

4.2 PROPOSED REGULATION OF VEHICULAR NOISE

Vehicular noise constitutes one of the major sources of noise pollution subject to proposed regulation. Fortunately, it appears also to present an opportunity for substantial improvement over present regulatory systems.

4.2.1 Sources of Vehicular Noise

Noise from a passing vehicle represents a variety of problems of design and maintenance. At lower speeds, especially during initial acceleration, noise emanates primarily from the internal combustion engine. With varying degrees of efficiency, the mufflers and connecting pipes of the exhaust system abate engine racket on its way to the world outside. Some acoustical inefficiency occasionally results from intentionally inadequate design. For example, certain of Detroit's "muscle cars" and many makes of motorcycles are designed to emit greater levels of noise through factory installed "shorty pipes." The practice owes its continued existence to a marketing theory which panders to subliminal identification of power and virility with the throaty rumble of a Harley chopper. In other instances, firetrucks and some other special-purpose vehicles are designed without mufflers in an effort to maximize performance. It is well known that the back pressure created by noise suppressing devices downgrades the maximum possible efficiency of the engine.

Other sources of vehicular noise -- horns, tire design, road surfaces, and aerodynamic aspects of body design -- present somewhat more difficult questions as sources of abateable vehicular noise. Body and tire noise, for example, only become significant at substantial vehicle speeds. Often in urban areas where vehicles move slowly, tires and body design have little influence on overall vehicle noise. Yet, the same vehicle moving rapidly on a limited access highway through the same area can create considerable noise.

4.2.2 The Negative Effects of Vehicular Noise

Like many other sources of noise, vehicular noise causes or contributes to a wide span of deleterious effects. Sustained exposure can cause hearing impairment. Speech disruption in congested traffic is so common in urban areas that it is almost accepted. Moreover, traffic noise is among the prime contributors to ambient noise levels. Ambient noise in the vicinity of congested arteries or major expressways often reaches intolerable levels. The disagreeable quality of this noisy environment in residential or other areas of incompatible use (e.g. hospital zones, schools) often is reflected in depressed property values. While certain cases have recognized the relationship of noise to property values,[75] less dramatic effects of vehicular noise pollution tend to be written off as a social cost of increasing ease of transportation.

4.2.3 Existing Major Deficiencies

A. Technological and Economic Deficiencies

Present efforts to control vehicular noise have yielded less than impressive results. (See Section 3.) As has often been noted, moreover, "there are no great technical barriers to better control of vehicle noise."[76] The explanations of the vehicular noise problem tend to emerge as shortcomings of the regulatory scheme and public awareness.

Foremost among the present deficiencies is the lack of any realistic market incentive to implement quiet technology. Since noise abatement technology rarely adds to the performance value of a vehicle, it cannot be expected to have intrinsic market value. Without uniform market-wide pressure to adopt quieter vehicular technology, it is useless to expect commercial noisemakers to shoulder the admittedly increased cost of new and quiet equipment while their competitors opt for cheaper, noisier equipment. Likewise, unless required by regulation, the average consumer will not prefer quieter technology on a scale which will justify manufacturer entry into that market. Purchasers tend to view noise (or its absence) as a social amenity rather than a social necessity.

Often, a manufacturer's heavy investment in existing technology creates a substantial economic disincentive toward change. This is especially true when the initial cost cannot be recovered until the end of the marketing process.

B. Deficiencies in the Existing Regulatory Effort at the Federal Level

The above discussion suggests the need for an artificial market incentive for quiet technology created through regulatory means. In addition, the broad integrated scale of vehicular production drawing on diverse suppliers and a nationwide sales market must be noted as indices of the scope of the entire process. No less important is the unrestricted nationwide use made of vehicles by purchasers after the initial sale. Any realistic broad scale economic regulation has traditionally come from the Federal government.

At present, however, the Federal government is not involved in any regulation of vehicular noise at the source (except for aircraft, discussed separately). Not even through its enormous bargaining power in procurement does it attempt to induce production of quieter vehicles for its own use. And even if this technique were employed, only the Federal market would be directly affected and any spill over into the rest of the market would remain problematic.

Perhaps as an unavoidable consequence of the Federal government's disinterest in regulation of noise, there is no designated Federal agency which will permanently research and regulate vehicular noise. Only the recent effort by the Environmental Protection Agency, under the 1970 Clean Air Amendments, Title IV,[77] shows signs of directing the initial efforts needed to lay a foundation for effective future regulation.

C. Deficiencies in the Existing Regulatory Effort at the State and Local Level

Historically, regulation of vehicular noise has found its greatest expression on the State and local level. Perceived in terms of its negative effects, noise pollution has been classified as appropriate for exercise of police powers to protect the public welfare. However, viewed in terms of abatement efficiency, point source regulation promises the most productive results.

Given the scale of our economy, however, source control ultimately involves the states directly or indirectly in the regulation of interstate commerce. With this power vested exclusively in the Federal government, and a well established restriction on most parallel state activity, State (and local) governmental deficiencies emerge largely as problems of Federalism.

Thus, while State exercises of police powers abating the source of vehicular noise may be theoretically valid, they exist subject to constitutional qualification. At any time, they may be challenged as unreasonable restraints on interstate commerce. Finally, although to a lesser extent, prospects of Federal government regulation of source control may have had the effect of stifling State initiative.

With the specific exceptions of New York, California, Minnesota, Idaho and Colorado, all other State level jurisdictions have failed to develop emission standards based upon objective criteria. (See Section 1.2.2.) It is probably fair to say that expensive measuring equipment and lack of trained enforcement personnel have contributed to the criteria deficiency problem. In place of objective criteria and standards, the State and local governments have relied on broad standards notorious for their vagueness and dangerously amenable to selective enforcement. Such standards do little to control noise and less to promote community compliance.

Few states or localities have discrete agencies charged specifically with quieting such sources of noise as vehicles. Most commonly, the charge devolves upon such familiar but overloaded enforcement patterns and personnel as the courts and police. If noise is inherent in the design of a vehicle, police are justly hesitant to enforce a noise standard against an owner or operator. If they do, the resentment engendered usually outweighs the social value of the citation issued -- especially when the manufacturer is remote and unlikely to feel the impact of the prohibition.

Perhaps the aggregation of all these deficiencies has resulted in the most common overall deficiency: to date, noise abatement and control has commanded a low priority from both enforcement officials and affected participants. Against this attitudinal framework, the general phenomenon of rising noise levels despite existing regulatory schemes should come as no surprise.

4.2.4 Proposals to Remedy Major Deficiencies

For complete control of vehicular noise, some areas of technological development will require research. One commentator has observed:

> The current state-of-the-art of automotive design probably cannot reduce the noise level from heavy trucks below 85 dBA, without a substantial technological breakthrough in muffler design.[78]

Current research is underway to study the relationship of noise produced by tire design to safety factors.[79]

An awareness of these problems in the abatement of noise and the need for further research is reflected in many of the legislative proposals recently under consideration at the Federal and State levels of government. For example, on the Federal level one current proposal calls for:

> (3) determination of the most effective and practicable means of controlling noise generation, transmission, and reception...[80]

Another Federal proposal aimed at the states authorizes funds to be appropriated "for the investigation of existing causes of excessive noise in our environment and research into new techniques of controlling, preventing and abating noise...."[81]

On the State level, examples of legislative concern have typically taken the form of that expressed in a bill before the Oregon Legislature. Therein, the appropriate agency is directed to:[82]

> (5) Conduct or cause to be conducted studies and research considered by it to be necessary in providing for the prevention and abatement of noise pollution.

Similar examples of proposed research into the prevention or abatement of noise (including vehicular) are before the legislatures of Oklahoma, New Jersey and Pennsylvania.[83]

A. Proposals to Remedy Deficiencies at the Federal Level of Regulation

1. Possible Sources of Authority and Related Problems

Most proposals which contemplate some sort of Federal governmental regulation of vehicular noise draw upon the commerce clause of the Constitution as their source of authority. One current proposal before the House of Representatives directs the Administrator of the Environmental Protection Agency to "prescribe as soon as practicable standards, rules, and regulations applicable to the emission of noise from motor vehicles sold in commerce...."[84] Another major Federal governmental proposal similarly seeks to regulate goods which "move in commerce" and require "national uniformity of treatment."[85]

While many Federal proposals typically recognize "a growing danger to the health and welfare of the Nation's population,..."[86] thereby sounding and functioning like an exercise of State police power, similar adaptations of the commerce clause have withstood judicial scrutiny.

> Under the commerce power we find regulations of food products, insurance, labor conditions, various miscellaneous rates, and public morality and safety.[87]

Given this broad range of items regulated by Congress in the past, regulation of sources of vehicular noise under the commerce clause of the Constitution should pose no disturbingly new exercise of Federal power.

Should the Federal government enter the field of regulation of vehicular noise, a valid source and exercise of Congressional power will be of critical significance in an all but inevitable conflict between Federal and State regulation. As detailed in Section 1.2, there are already a growing number of states which have adopted comprehensive codes to regulate vehicular noise. At this writing, at least thirty-three state legislatures have had similar proposals before them in the past year.[88] Federal entry would raise certain obvious questions, most of which crystalize into a preemption question.

Strong policy considerations support the conceptual framework of the preemption doctrine. Assuming the common desire of both Federal and state governments to regulate the source of vehicular noise, these considerations form a guideline to efficient regulation. A need for national uniformity in a smoothly functioning and highly integrated economy is the foremost consideration. Since vehicles are involved in our economy in many ways, there are different factual contexts in which uniformity will be needed.

In manufacturing vehicles, production tends to be a centralized activity while distribution is nationwide. Practical limitations in manufacturing techniques make one uniform standard of acoustical quality best adaptable to mass production. Since regulation limiting levels of emissions of motor vehicles directly or indirectly requires control over the production process, overall Federal regulation of this type has obvious benefits. It can strike at the source of vehicular noise while maintaining one standard for the entire economy.

Once manufactured, motor vehicles form a fundamental part of our national transportation system. Commercial or private motor vehicles operated in regional or nationwide travel simply cannot be continuously altered or adapted to meet varying state emission standards. The impracticality of permitting such a regulatory pattern to develop has been recognized in such similar contexts as the truck mud-flap cases. To the extent states would be willing to exempt out-of-state vehicles from their coverage, these difficulties might be avoided. However, to date, exemptions have not appeared in present or proposed regulation. Exemptions would not only vitiate the state's goal of protecting its citizenry, but detract from the efficacy of the regulation in the eyes of those who remained covered. Again, the advantages of Federal regulation protecting the general welfare and implementing uniform standards become evident.

Certain qualifications must be recognized in support of a State's right to control vehicular noise. To date, control of vehicular noise has been exclusively an exercise of State police powers. Their present efforts to become more efficient reflect the needs and wishes of their citizenry. In part, State response relates to their awareness of acute local problems where ambient levels require immediate stringent abatement. Finally, in the absence of Federal regulatory controls, the states have no alternative to acting themselves. Indeed, their recent efforts may be intended in part to goad the Federal government into action.

Ideally, the preemption question should be anticipated and resolved without a tedious court contest to clarify the functions of the various levels of government. Since Congress is presently considering the appropriate role for the Federal government to play in the regulation of vehicular noise, there is an excellent opportunity to clearly define the distribution of the regulatory powers. Through careful draftsmanship, for example, it can be decided whether the Federal government will regulate both the design of noise sources and their operation or only design, although it is difficult to imagine how only design can be preempted without influencing certain kinds of operation. Failure to specify such matters carefully could result in permitting the states to require indirectly a type of retrofit (i.e. design change) to meet State operation standards. Such a situation would be tantamount to a proliferation of State standards, the disadvantages of which have been mentioned above.

2. Proposals to Assist Development of Uniformity and Clarification of Noise Measurement Criteria

Practically all proposals for regulation of noise by the Federal government advocate clarification of the criteria problem. Existing regulatory efforts have given birth to a myriad of numerical criteria such as dBA, EPNdB, NEF and CNR. While these have enabled more precise descriptions of noise phenomena, they have also created some confusion in the minds of affected participants.

In terms of vehicular noise, the problem could arise in the following context. One type of criterion might be necessary for measuring point source emission from a single vehicle. Another may be needed to measure the effect of that emission over an eight hour day or as a contributing element in ambient levels. Federal proposals generally call for needed research and development of criteria. They also seek to organize and coordinate all such activity taking place at the Federal level of government. S. 1016, for example, instructs the Administrator of EPA to:

> (D)evelop and publish such criteria for noise as in his judgment may be requisite for the protection of the public health and welfare.... The Administrator shall confer with the Secretaries of Health, Education, and Welfare, and of Labor to assure consistency between the criteria published under this subsection and criteria and standards for occupational noise exposure produced under the Occupational Safety and Health Act of 1970.[89]

Presumably, once effective criteria have been developed by the Federal government, the advantages in their use will motivate the states to adopt them. Since states may often be measuring the same sources as the Federal government -- depending on the role the Federal government chooses to assume in noise regulation -- important steps toward uniformity can be taken.

One dissenting voice has been raised regarding the criteria problem by Robert Alex Baron in his recent book, The Tyranny of Noise. He asks:

> Does it make sense to worry about the nuances of decibels when the receiver is experiencing noise in the 90 and 100 decibel range? Because the prolonged barking of dogs disturbs sleep, we enact ordinances to compel dog owners to keep their pets quiet at night. These anti-barking codes do not specify the size of the dog, or the decibel level of the bark, or even the use of perceived barking dog noise decibels (PBDNdB). It is accepted that sleep must be protected and that barking disturbs sleep. Yet when it comes to jet planes or trucks or air conditioners, all of which can and do disturb sleep, we are asked to wait for the perfect measurement.[90]

Mr. Baron generally feels that as long as our emphasis is placed on such concerns as developing criteria, little will be done to actually abate noise.

3. Proposals for the Promulgation of Standards by the Federal Government

Presumably, once criteria have been developed, standards will be promulgated based upon them. The general dilemma faced in setting standards has been put thusly by Kramon:

> A well-designed noise control program should be based on objectives which are defined in terms of the measurable variables of sound. The permissable maximum should be tailored as closely as possible to the needs of human beings. No program which promises to be efficacious can rely on a subjective standard for noise. But no program is worth implementing unless it imposes limitations which will protect people from the adverse effects of sound.[91]

Mr. Kramon raises an important difficulty in setting standards.

In the past, standards often left enforcement to vague and ultimately subjective guides. Here, he is suggesting that objective criteria can replace subjective guides in newly promulgated standards without sacrificing human relevance. Any forthcoming Federal regulation will undoubtably follow this approach.

Setting any standard must inevitably reflect many interests and weigh several considerations. Common phrases running through current Federal proposals include the familiar tests, "economically reasonable" and "technologically feasible." Another commonly adopted phrase requires consideration of whether the proposed standard is "appropriate for the particular type of motor vehicle to which it will apply."[92]

The "economically reasonable" test consistently has been subject to criticism similar to that voiced by Jerome Kretchmer, New York City's Office of Noise Abatement, when he noted:

> This language is a loophole that has too often been used to avoid cleaning up pollution problems. It might be argued, for example, that it is not economically reasonable to expect airlines to retrofit their jet engines with admittedly costly soundproofing nacelles. But this approach ignores the fact that the cost of sound reduction is one the airlines should have been bearing all along. By not doing so, they have not only been affecting human health, but also depleting a resource (our quiet air) that does not belong to them and should not be provided to them free of charge. Therefore, the "economically reasonable" test cannot be applied to pollution abatement standards without making it abundantly clear that all the societal costs of allowing the pollution in question to continue must form part of the equation.[93]

The "economically reasonable" test has caused substantial controversy in other pollution realms where it has been applied. Environmentalists pressing for the broad equation suggested by

Kretchmer have had to face the prospects of industrial shutdowns and run away plants. To date, no one has suggested that abatement of vehicular noise is likely to trigger such consequences, although this may be attributable to the embryonic phases of the abatement effort more than to the actual cost of providing a quiet environment. As the standard-setting process commences under Federal or State regulation, the question will get a much fuller hearing.

Finally, to the extent that some proposals may call for stricter standards, it should be kept in mind that one of the deficiencies in the noise regulation has been its low social priority. Until that priority position is improved, it is unlikely that strict tests will be adopted when setting standards or that the ones proposed will get their broadest possible interpretation. No matter at what point in the decision making process these concerns are raised, they reflect the ultimate question: to what extent is our society willing to adjust the contradictions between economic and ecological systems? That, of course, is a question of political priorities.

4. Alternative Enforcement Proposals for Federal Regulation of Vehicular Noise

Various proposals at the Federal level advocate establishing a single agency to deal with the problems of noise abatement and control. While some special interest groups have opposed creation of such a centralized authority,[94] certain advantages seem inherent in this organization of the Federal regulatory scheme.

Since one of the primary problems facing enforcement of noise regulation appears to be lack of public information and understanding, centralizing and identifying one Federal agency will tend to highlight responsibility and authority in the agency. This should be especially helpful as citizens' groups and newly affected participants unfamiliar with the diffuse Federal bureaucracy enter the noise abatement effort. It has been suggested in particular that within the Environmental Protection Agency itself, the Office of Noise Abatement and Control be retained permanently.[95]

Enforcement techniques in current Federal proposals have raised some interesting questions of an administrative and Constitutional nature. There is considerable controversy over proposals which recommend giving the Federal administrative authority its own litigation resources. Some have argued that all litigation should be channelled through the Department of Justice. Those favoring independent enforcement resources view the problem as one in need of singleminded pursuit of noise pollutors -- a job they feel can best be performed by in-house counsel. Propoennts of Justice Department participation argue that broader governmental needs for uniform litigation policy favor their method. A working arrangement giving Justice a voice in policy decisions arising out of litigation would seem to be an obvious compromise.

A more difficult question arises around the enforcement powers which would be vested in the Federal enforcement agent under some proposals. One leading proposal, S. 1016, would empower the Administrator of EPA to "assess" a "civil penalty" of not more than $25,000 for each violation. However, "no penalty shall be assessed until the person charged shall have been given notice and opportunity for a hearing on such a charge."[96] The obvious virtue of such a scheme lies in the ability to compel abatement of noise or control violations without resorting to the cumbersome machinery of a criminal trial.

Some legitimate objections also may be raised if and when such a technique is adopted. The potentially penal character of this provision may require full due process protections under the Fifth and Sixth Amendments. As the Supreme Court noted in Trop v. Dulles, 356 U.S. 87,(1957):

> Doubtless even a clear legislative classification of a statute as 'non-penal' would not alter the fundamental nature of a plainly penal statute. (At 95.)

But whether S. 1016 may or may not have a procedurally inadequate enforcement technique is not the question of broadest significance. In any regulatory effort to abate noise, there will be a strong desire to invest the streamlined and more efficient administrative process with the clout of heavy sanctions. It may not be possible to merge these concepts within the limits of due process doctrines. In establishing any regulatory scheme, great care must be given to these considerations.

5. Proposed Implementation Techniques for Federal Regulation of Vehicular Noise

Among the choices of implementation techniques, the most prevalent proposal for Federal action appears to be centered around the promulgation of standards which vehicle manufacturers would be required to meet before their goods would be permitted in interstate commerce. Failure to comply with the adopted standards would result in imposition of a sanction similar to the type described above. Standard hearing procedures and publication requirements are built into most proposals to insure adequate opportunity to affected participants to partake in the decision making process.

Other proposals have been advanced for Federal control of vehicular noise. The Federal Aid to Highways Act is now used as authority to design quieter vehicular arteries.[97] The technical feasibility of this approach has been supported by Beaton and Bourget who have stated that "inherent differences between various designs can affect the noise path...10 dBA or more."[98] While much of the highway program has been completed, those portions to be developed in urban areas offer an excellent opportunity to implement this technique to its full extent. Moreover, it is unlikely that the last Federally funded highway will be built under the authority of this Act. As new authority and new funds are appropriated to develop the vehicular transportation medium, the experience of the present program could serve as a useful precedent.

Baron has suggested a streamlined form of social compensation to those affected by necessary and unabateable noise. The so-called "amenity grant" concept provides special funds to insulate homes and businesses damaged by noise in high impact areas.[99]

Regardless of what implementation technique looks most attractive for Federal action, a substantial effort at public education must parallel the regulatory effort. In furtherance of this very much needed facet of the regulatory scheme, S. 1016 will, if enacted:

> Disseminate to the public information on the effects of noise, acceptable noise levels, and techniques for noise measurement and control.[100]

To the extent vigorous enforcement can habituate the population into making less noise, it may prove useful. However, experience has shown that neither law enforcement officers nor the general public tend to enforce or obey laws they find subjectively unimportant or unrelated to their daily experience. Perhaps a prelude to any successful Federal involvement in noise abatement should be the educational effort suggested above.

B. Proposals to Remedy Deficiencies in Regulation of Vehicular Noise by the States

1. Sources of Authority for State Action and Related Problems

Many of the deficiencies in the total noise abatement effort are at levels of the regulatory pyramid other than the Federal level, and must be so addressed. Powers necessary for complete control of noise often are vested in State or local government. Traditionally, the states have been the level at which broad police powers have been exercised in the interest of the public welfare. The states all have extensive legal frameworks which, to some degree, seek to regulate vehicular noise. (See Section 1.2.)

The most familiar efforts by states in the vehicular noise area have been those statutes requiring mufflers or merely prohibiting excessive noise. Their general character and weakness do not need reiteration. Whether for reasons of statutory inadequacy or enforcement deficiencies, many states have felt the need to revitalize their noise abatement programs.

At this writing, 33 states have introduced before their legislatures a total of over 100 pieces of legislation dealing directly with noise and often specifically with vehicular noise.[101] While a few proposed bills cling to the familiar patterns of regulation employing such broad standards as "excessively" or "unreasonably" loud, a growing number of the states appear to be moving toward more sophisticated approaches.

2. Proposed Criteria and Standards for State and Local Regulation of Vehicular Noise

A survey of the better State legislation for control of vehicular noise shows two basic types of proposals emerging. The first is typified by inclusion of specific standards in the body of the bill. New York Assembly bill 3193, for example, uses a dBA criteria and progressively stricter standards, dropping from 88 dBA (measured at fifty feet) to 80 dBA over an eight year period.[102]

A second type of State proposal, demonstrated by Oregon House bill 3028, directs the State Environmental Quality Commission to:

> (A)dopt rules and regulations with respect to the permissible limits for the emission of noise by motor vehicles....[103]

Proposals delegating the power to set standards to agencies commonly require hearings during which affected participants will have an opportunity to contribute to the decision making process.

One of the more striking features of the Oregon bill, and a feature found occasionally in other state proposals, permits the agency to vary their standards according to local conditions. Apparently, the states' great concern with health and welfare outweighs the benefits of uniformity at their level.

Great concern has been expressed regarding states with stricter standards than those which might be adopted by the pending Federal proposals. Two considerations should be kept in mind regarding such a development.

First, the states presently occupy the field of regulation of vehicular noise. Whether a state has a vague standard prohibiting "excessively loud" noise or an objective standard prohibiting noise in excess of 88 dBA at fifty feet really makes little difference in the State's theoretical relationship to the Federal government; it is far more important to remember that it is the states who have acted. The Federal government, having the power to preempt, and knowing the problem exists, would be nothing short of negligent if it entered the field with anything less than a clear statement of intent. The states, for their part, will have to accept whatever role the Federal government defines for them.

Secondly, some obvious practical considerations should be offered to soften any apocalyptic visions of lenient Federal standards leaving the states powerless. Those states using the vague standards will most likely adopt the Federal criteria and standards as a definition of what is "excessive" or "unreasonable." Their statutory structure will not be devastated. States using specific objective standards may have to amend their standards and adopt Federal standards. This should be considered since it leaves them with important enforcement options and powers. For example, they may still vigorously pursue violators on occasions where the Federal government is not willing to act.

Additionally, it does not appear that the State and Federal governments are far apart in their analysis and proposed solution of noise problems. For example, a typical standard proposed by California, one of the stricter states, would adopt a limit for motorcycles of 86 dBA at fifty feet by 1975.[104] Comparing this to a recent Department of Commerce proposal to limit motorcycles to between 87 and 90 dBA,[105] it would appear that the State and Federal governments have reached relatively compatible rather than conflicting conclusions as to needed regulatory solutions.

3. Possible Implementation Techniques in State and Local Regulation of Noise.

In addition to the type of design-source regulation discussed thus far, the states and their local partners possess many other abatement options not available at other levels of government. Certain techniques, such as zoning, building codes, eminent domain, and community planning are much used State and local functions. Undoubtedly, many of the states creating noise control agencies will explore these alternatives. Often, these agencies are charged with coordinating and improving existing governmental activities to abate noise.

One emerging technique being employed at the State and local level sets ambient-level limits which vary according to zonal activity and time of day. For example, a commercial activity zone between the hours of 7 A.M. and 7 P.M. may have an ambient standard of 65 dBA. Anything in excess of this is considered an abatable nuisance or a prohibited act. New York City's recently proposed noise control code will establish such ambient zone standards for the entire city.[106] Presumably, heavy vehicular noise could be controlled or re-routed by the authority granted under such a proposal.

House Bill No. 1172 before the Kansas Legislature demonstrates planning and zoning techniques to control noise. The State Health Officer is directed to inspect all highway plans to determine whether they will create a noise problem. If such a problem is evident from his study of the plans, he may order relocation of the highway. The same officer may also deny to local officials the authority to issue permits or to zone where he finds that such powers will create noise hazards.[107]

4. Proposed Remedies to Enforcement Deficiencies in State and Local Regulation of Vehicular Noise

Even the best plans and proposals will ultimately depend for their success on effective enforcement. In this respect, the states have both the greatest experience and the gravest deficiencies. (See Section 3.2.2.) In too many instances, control of noise has been dumped on the overloaded police-judicial machinery. Amidst hundreds of competing priorities, enforcement of noise regulation has become an abandoned sanction.

The same functional remedy which has been put forward on the Federal level can be adopted on the State and local level. The City of New York has underway a demonstration project office charged with noise abatement and control. It has the advantages foreseen in its proposed Federal concomitant. Centralized focus and responsibility tend to promote vigorous enforcement. Discrete designation encourages uniformity and coordination from such diverse functionaries as zoning authorities and highway planners.

If the states hope to cope effectively with noise, it appears essential that a specific governmental agent be charged with overall responsibility for noise control. To promote development of this contour of the regulatory paradigm, financial commitment will be necessary. The traditional Federal grant-in-aid could provide a promising response to this need. Grant money and technical assistance should be provided by the Federal government to assist the states in establishing and operating their noise abatement programs. In addition to providing needed funds at the State level, Federal grants could be conditioned to promote uniformity on a nationwide basis where required. The states, in turn, would be assured of adequate resources to perform the functions they carry out best.

C. Proposals for Citizen Participation in the Regulation of Vehicular Noise

Among the proposals for State and Federal action on the noise problem, there have been suggestions that private citizens be given an enlarged role in the protection of their environment.[105] Primarily, these proposals all start with one solid assumption: affected individuals will be diligent and vigorous proponents of noise abatement.

Most of the proposals for private sector involvement center around enforcement efforts. They seek to give citizens access to the Federal courts regardless of jurisdictional amount. Two types of suits are foreseen as necessary tactics to ensure citizen participation. The first is a suit directly against a noisemaker for violation of the State or Federal standard. Most proposals require that the party plaintiff give the appropriate governmental authority adequate notice of intent should the government wish to take action on the public's behalf. Such a requirement would also seem reasonable if the government were working to bring about voluntary compliance at the time the suit was proposed.

The other kind of proposed suit would be against the governmental agent to compel performance of duties not of a discretionary nature. Basically, such suits find their origin in the common law extraordinary writs. Like those writs, they will be limited by interpretation of what is mandatory and what is discretionary. They do not seem to substantially augment the general regulatory scheme. Their primary advantage lies in focusing governmental resources which otherwise might be directed elsewhere.

Resources to bring suit often raise discouraging barriers to potential litigants. Rather than dissipate governmental resources through mandamus suits against the governmental agents, legislation proposed to create private causes of action should likewise provide for necessary attorneys' and witnesses' fees as part of the damages award. To this can be added the familiar concept of the bounty or punitive award. Perhaps half of this should be paid to the concerned citizen and half be held in trust by the government to finance its abatement efforts.

None of these types of suits will be viable if they must exist in an informational vacuum. Information held on all levels of government which relates to standards, testing, emissions and other necessary subjects must be provided to the public. Further, manufacturers should be required to publicly file their plans to comply with proposed standards. There is no reason why the public should have to wait for the sale of a defective model when the noise could be anticipated and abated through proper design in the planning stages.

When the Federal government sets out to regulate so broad and powerful an industry as the manufacturers of motor vehicles, it faces a political power second to none in this country. The past record of the government in securing industry cooperation on exhaust emission and safety design documents the vulnerability of even the best conceived regulatory schemes. The advantage of the citizen suit lies not in its technique but in its overall effect. In the final analysis, citizens suits are a redistribution of political powers. They vest rights in people whose interests are not subject to persuasive erosion by skilled lobbyists or technological obfuscation by experts both in and out of government. What citizens lack in terms of resources can be provided by regulation. What they possess in terms of concern for their environment cannot be provided in any regulatory schemes.

Citizen suits need not degenerate into the quixotic vendettas of "eco-maniacs." If government shows a willingness to work closely with both organized and individual citizenry, their energies can be channelled. Toward this end, an honest factual appraisal of the noise problem and government efforts to abate it should become a basic service provided for any citizen engaged in litigation or community organization around the noise problem. In the vehicular noise area this may require close communication with automobile associations, consumer protection groups or environmental interest associations. Because government works closely with industry on environmental problems through the National Industrial Pollution Control Council there exists an understanding of industry's position in the noise abatement field. While the citizenry is not organized and institutionalized to the same extent as industry, it is no less in need of the same communication. If noise abatement is to be recognized as a real environmental threat, this kind of grass-roots contact between government and the public must take place.

4.3 PROPOSED REGULATION OF NOISE CAUSED BY CONSTRUCTION

4.3.1 Sources of Noise Caused by Construction

On any given construction site, the variety of equipment in use can cause enormous amounts of unwanted and unnecessary noise.

> Diesel engine equipment is the major source of noise around most construction sites. Such engines are used to drive generators, compressors, trucks, bulldozers, loaders, scrapers, power shovels and other excavating equipment. Air compressors generate noise from both intake and discharge openings and also radiate noise directly from cylinder walls. Pumps produce a number of sounds which are radiated from the pumps themselves and also from piping serving the pumps. The noise of piledrivers, riveting machines, jackhammers, elevators, cement mixers and excavating equipment characterize many construction activities. Residential construction involving the use of hammers, power saws, electric drills and concrete equipment is an annoyance in many communities.[109]

4.3.2 Negative Effects of Noise Caused by Construction Equipment

Like other sources of noise, construction related noise produces a broad spectrum of negative effects. For workers exposed over an eight hour day to excessive emissions, there is risk of hearing impairment; as a contributor to ambient levels, construction noise is notorious. Since the customary working hours in the construction industry begin earlier than most other occupations, all too often the early morning din of a building site disrupts the sleep of members of a community.

4.3.3 Existing Major Deficiencies in the Abatement of Construction Noise

A. Technological and Economic Problems

It is difficult to assess the technological potential to abate noise from construction equipment without discussing each piece of equipment. However, some evidence of progress can be cited with regard to at least some major pieces of noisy equipment. Ingersoll-Rand has developed quieter air compressors, and improved mufflers are available at present to abate noise from jack-hammers. Quiet alternatives also exist for pavement breakers and pile-drivers.[110] Other efforts have proven less productive. Performance degradation has proven some technological suggestions inefficient. Quieting techniques theoretically possible for riveting "do not seem promising since such methods usually impose a weight penalty."[111]

Availability of quieter equipment will not guarantee its use. Providing a market and incentive to purchase new equipment appears to be as great a deficiency in abating construction noise as it has in other noise control areas. Hildebrand attributes this, in part, to the competitive character of the construction industry. He has observed:

> Noise control is expensive, and it is as unreasonable as it is naive to ask sympathetic construction firms and industries to invest in noise control measures voluntarily only to let the unsympathetic companies underbid them on jobs by avoiding noise control costs.[112]

While Hildebrand's observation is quite sensible, the same reasoning leads to the conclusion that manufacturers would not risk the same competitive exposure in producing quiet equipment that builders face in using it, if the production market were not there. Since Ingersoll-Rand is producing quieter compressors, someone must be interested in buying and using them. The indications are that while market incentives are still very deficient, a period of transition may be underway.

B. Regulatory Deficiencies on the Federal Level

Seen in one perspective, the Federal government not only does little to abate noise caused by construction, but ultimately, is a primary noisemaker. Direct Federal construction in 1970 (estimate) exceeded in cost the sum of $4.3 billion; another $6.4 billion in Federal funds went into grants for other public works.[113] Despite its enormous purchasing power inherent in the size of its business, the Federal government has done little to abate construction noise. It has recently undertaken to regulate noise exposure to construction workers on Federal job sites,[114] yet it has not considered its position as a contributor to community noise levels in the locations where it builds.

Construction noise, like that generated by other noisy technology, can best be abated at its source, often through modification in design at the manufacturing stage. Since this means regulation of goods which will inevitably flow in interstate commerce, only the Federal government has the power to initiate progress of this sort. Again, it has not chosen to utilize this source of authority to regulate noise.

C. Regulatory Deficiencies on the State and Local Level

As pointed out in Section 1.2.4, the dominant response of State and local government to the noise caused by construction equipment has not taken the form of controlling the source of noise, but rather the effects of that noise on receivers. Such techniques as curfews, spill-over limits, licenses and permits are not designed to abate noise by changing the design of the source. They aim at protecting the receiver from the effects of the emission.

For obvious reasons, this is one of the less efficient ways of controlling noise. Curfews must often compete or conflict with other important public interests. Construction work on transportation systems used heavily during the day, for example, can best be carried out at night. However, a curfew prohibiting such activity does nothing to change the character of the activities in conflict. It forces a choice between two activities, and in so doing fails to address the question of making conflicting activities compatible. This in many ways is the conceptual downfall of much State and local regulatory activity.

On the local level, where regulation of construction noise often occurs, the typical abatement effort has found expression in the anti-noise ordinance. But, as Kramon has noted:

> Construction equipment is universally considered too noisy, but few communities could singlehandedly outlaw the use of such equipment. To do so would raise the cost of building in the community considerably.

Commenting on the widely adopted NIMLO model ordinance, Baron cites this deficiency:

> Written to cover 'unnecessary and unreasonable' noise, it is a license to pollute....
>
> That word unnecessary is the fly in the ointment. It is not interpreted as meaning capable of being muffled. An unnecessary noise is a noise without a social utility. Dog barking and promiscuous use of the auto horn are deemed to be without social utility. Construction noise is the result of a socially useful activity, and therefore free from restraint.[116]

In short, at all levels of government, the noise from construction goes on virtually unabated. However, as the ineffectiveness of regulation and the growing noise problem have stimulated renewed political interest, new proposals for more effective regulation have emerged.

4.3.4 Proposals to Remedy Major Deficiencies in the Regulation of Noise Caused by Construction

A. Proposals for Introduction of Federal Regulation of Construction Noise

Efforts to introduce effective Federal regulation of noise caused by construction equipment focus around two distinct approaches. Those who see the need for uniform nationwide regulation by direct promulgation of emission standards for construction equipment have introduced legislation in Congress to that effect.[117] Others, perhaps less enthusiastic about the mandatory approach, have advocated government leadership in a broad incentive type program designed to create a market for quiet technology. Gradually, as older noisier equipment exhausts its product life, quieter technology would take its place.

Certain advantages can be found in both approaches. Mandatory regulation has the advantage of reaching all elements of the construction industry with uniform impact. Since much of the industry consists of small builders who never bid on government work, regulations adopted by a regulatory agency of the Federal government would reach much farther than voluntary compliance from large contractors engaged in government building. Moreover, since much of the ability to quiet construction equipment appears well within existing technological potential, immediate gain at every level of society could be achieved. Muffled jack-hammers do not present the same scale of problems as retrofitting jet aircraft, but their contribution to subjective annoyance certainly compels their expeditious abatement. In short, in much of the construction area, there is opportunity for immediate nationwide gain if mandatory regulation is chosen as the appropriate implementation technique.

Perhaps it would be wise to qualify a program of mandatory regulation of construction noise to the extent of the discussion of regulatory and intergovernmental problems mentioned in Section 4.3. Regardless of the source of noise being abated, questions of intergovernmental relationships remain largely the same. Decisions regarding preemption or appropriate implementation of powers unique to each level of government may vary with differing factual situations, but the problems and issues will still require the same analysis. Such considerations as uniformity, local needs, or burdens on commerce, as discussed in Section 4.3, are equally applicable to regulation of construction noise.

Some expansion and qualification must be added to those proposals advocating a voluntary program. The central impetus of such a program would require contractors doing business with the Federal government to use quiet technology whenever available on Federal projects. Presumably, the size of the Federal construction market would create a sufficient outlet for new equipment to allow manufacturers to develop and market new products. For that part of the construction industry not involved in the Federal market, a spill-over benefit would accrue. As their equipment required replacement, they would have available the quieter equipment improved under the Federal incentive market.

While such a program is voluntary in its initial appearance, experience indicates that some sort of sanction must be applied in the voluntary process. To insure compliance with Federal contract requirements, loss of future contracting privileges present the most obvious sort of compliance pressure. A useful comparison can be made to the Federal government's experience enforcing a similar type of incentive-sanction program under the Walsh-Healey Act. As demonstrated in Section 3.1.3, the Walsh-Healey experiment has not proven substantially effective. It is interesting to note, moreover, that the regulation of occupational noise by the incentive approach under Walsh-Healey has been subsumed by the direct mandatory regulation of the Occupational Safety and Health Act of 1970. This lesson may have significance transferable to the voluntary compliance proposals advocated for regulation of construction noise.

B. Prospects for Improved State Regulation of Construction Noise

Assuming the Federal government continues it passive role in the regulation of construction noise, certain improvements are well within the capability of the states. While states have no direct power to control design and noise emission levels of equipment manufactured outside the state, they can set standards for equipment sold or used within the state. Such an exercise of State power would be limited only by the Constitutional restraints of the interstate commerce clause.

Such a program could follow the same implementation patterns proposed for parallel regulatory schemes at the Federal level.

Regulations could be adopted after a hearing process considering the appropriate tests and factors (such as economic reasonableness and technological feasibility). Once set, these standards could be enforced by civil remedy or criminal sanction.

Already, some states have provided for regulation of construction through zone-type ambient levels. An appropriate agency is instructed to develop reasonable ambient level standards considering the dominant activity of a given area. Since construction noise closely parallels industrial noise, it is often granted the industrial standard of emission in any zone for the necessary length of the building project. However, such a waiver of the zonal standard is usually accompanied by a curfew restricting the site operation hours.

In many ways, such proposals are considerable improvements over the previous unregulated or random nuisance abatement efforts made by the states. They show considerable forethought and study of the noise problem. Many permit the responsible State agency to adopt varying standards to reflect local needs and conditions. To the extent that these are adopted, they will represent enormous progress over past State regulatory efforts. Almost certainly, they should dispense with many of the vagaries of the private nuisance suit by setting recognizable standards.

Even if design standards are preempted by the Federal government, the states can still play an important role in the control and abatement of noise. Levels of construction noise can be effectively regulated by the issuance of building permits and curfews, both uniquely local functions. Since some of the most comprehensive proposals on the Federal level reserve for the states control over use and operation of noisy equipment, it is foreseeable that the State proposals will have considerable impact if adopted. However, until some of these proposals are incorporated into the existing regulatory structure, it is unlikely that construction noise will be lessened or abated. Substantial progress can be hoped for if the Federal government acts. Simple advantages of size and distinct powers make this the most attractive expectation. But, even if the leadership in abatement efforts comes at the State and local levels, appreciable gains seem possible.

4.4 REGULATORY PATTERNS FOR THE ABATEMENT AND CONTROL OF DOMESTIC NOISE

Prefatory to identification of domestic noise sources it should be noted that many sources of noise -- trucks, jet aircraft and jack-hammers -- do much to degrade the environment of the home. However, since they have been treated separately, this sub-section will concern itself with sources of noise commonly found in the home coincident with modern living.

4.4.1 Domestic Noise Sources

Noise in the home is largely the by-product of modern appliances and living conveniences. It may cover a range of electrically powered equipment such as fans, garbage disposals, blenders, stereo amplifiers, television sets and air conditioners. All of these noise sources singly or in concert may seriously contribute to a noisy domestic environment. For example, it is estimated that at normal usage distances, a blender may emit noise approaching 95 decibels, an air exhaust wall fan 90 decibels and a garbage disposal 80 decibels.[118]

4.4.2 The Negative Effects of Domestic Noise

Because of its more subtle character and also because the victim and the polluter are often the same person or persons, noise in the home has remained a relatively unexplored area. However, regardless of its source, all noise can be foreseen to have definite detrimental effects. In his appearance before the Senate Subcommittee on Environment, Dr. Jack Westman of the University of Wisconsin clearly portrayed the domestic noise problem:

> One of the functions of the central nervous system is to respond to loud noises with protective arousal of the body for fighting or flight. In the home, a loud voice, dishwasher, running faucet or washing machine can produce sufficient sound to mobilize bodily responses that cause narrowing of the arteries, an increase in diastolic blood pressure and a decrease in blood supply to the heart. The sound levels produced by shouting, intense arguing, a range vent fan, a garbage disposal, an electric mixer, a blender or a knife sharpener cause dilation of the pupils, drying of the mouth, loss of skin color, muscular contraction, reduction in flow of gastric juices and an increase in heart rate. The combination of any of these sources of noise augmented by the background sound of a television set clearly can cause or aggravate a state of heightened body arousal and general nervous tension.
>
> Of great significance is the fact that all of the above bodily responses to noise can be "tuned out" because of the remarkable adaptability of the human nervous system. Physicians, as a result, see housewives who complain of headaches, gastrointestinal symptoms and nervous tension resulting from a general feeling of being overwhelmed by their home life. They are unaware of the fact that their symptoms are related to exposure to noise which brings to the surface submerged tensions and results in emotional outbursts, creating friction and conflict between family members.[119]

Assuming the accuracy of Dr. Westman's description, it should be clear that domestic noise is an area ripe for abatement and control.

4.4.3 Existing Major Deficiencies in the Regulation of Domestic Noise

A. Technological and Economic Deficiencies

It is difficult to assess the technological capacity for quietude in all areas of domestic noise. However, there are some indications that technology alone does not present an insuperable deficiency. Business Week recently surveyed the potential for technological abatement and concluded that:

> Improvements have already been made. Westinghouse, for instance, boasts that its new Continental line of air conditioners is the quietest on the market because the noisy components are placed outside the window (presumably becoming the neighbor's problem). Whirlpool claims it has cut noise from its clothes washers in half with soft rubber mounts that isolate vibrations from the motor. Disposers can now be ordered from most manufacturers with an optional glass fiber sound shield, which considerably tones down their normal ear-piercing level, sometimes as high as 100 decibels, or roughly equivalent to the roar from a power mower. Many companies now wrap their dishwasher tubs in glass fiber, which, along with changes in motor design and mounting, has reduced noise appreciably.[120]

While testifying on current proposals to regulate domestic noise, the representatives of the Air Conditioning and Refrigeration Institute indicated progress in their industry saying:

> Effective prediction and control of environmental noise is possible only if the sound-generating characteristics of particular types of machinery located in that environment are known. Technical standards for measuring the sound-generation of air-conditioning equipment have been developed by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, a technical society. These test standards are supplemented by programs such as the ARI Standards and Certification Program, which have been developed for rating the sound-generating characteristics of air-conditioning equipment.[121]

Unlike economic factors in other areas, cost alone is not prohibitive in quieting domestic noise. However, cost must be viewed in relation to price and the market. Business Week adds this point of qualification:

> Ultimately, the cost to stifle noise may prove to be the limiting factor. Noise control has already added about $10 to the price of the newer dishwashers, and making the machine virtually noiseless could tack on another $20 or more. Some appliance manufacturers believe the consumer is not ready to pay the premium.[122]

Competitive positions and the cost-price relationship problem indicate that if domestic noise is going to be quieted, regulating pressures will be needed to force the additional cost into the market.

B. Regulatory Deficiencies at the Federal and State Levels

For purposes of noise abatement and control, domestic noise has attracted little attention at any level of government. In large part, this is due to a conspicuous lack of public awareness of the domestic noise problem. Dr. Westman, a leader in delineating the problem noted:

> Perhaps the neglect of household noise as a source of nervous tension in families can be explained by the general lack of information about the nature of life as it is really lived in American homes.[123]

Since almost without exception political response awaits public recognition of a problem, it is unrealistic to define deficiencies at the Federal or State level of government in the absence of wider recognition of domestic noise as a pollutant. In fact, recent consumer interest in quiet appliances seems to coincide quite closely with discussion of serious proposals to regulate such noise. Finally, there is a strong and historic concept of privacy surrounding the home and its environment which has undoubtedly discouraged regulatory intrusion by government.

4.4.4 Proposals to Regulate Domestic Noise

A. Proposed Federal Regulatory Schemes

The Federal government has come forward with the same regulatory scheme for abatement of domestic noise sources as it has for many other sources. It has been proposed that following study and hearings, standards be set by the Environmental

Protection Agency over electrical and electronic equipment. Introduction into commerce of substandard goods would constitute a prohibited act subject to enforcement in the courts. As an alternative to regulation by standards, some attention has been given to a labelling requirement which would disclose the product's noise characteristics for the benefit of the consuming public. Presumably, increasing awareness of the noise problem would provide sufficient market pressure to give quiet equipment a preference.

Since promulgation of Federal standards for control over domestic noise sources would be wholly innovative at any level of government, there should be no problem of uniformity of criteria. Moreover, if the Federal standards follow the general thrust of other Federal noise abatement efforts, it appears that there will be no uniformity problem with the states since, in whole or in part, the Federal government will have preempted the field.

The arguments in favor of Federal promulgation and preemption reflect the concerns of any industry involved in interstate commerce. They were summed up thusly by the representatives of the Air-Conditioning and Refrigeration Institute:

> We consider it desirable that the bill contain the strongest legally permissible preemption provision in order to avoid the chaos which would result if this industry were forced to meet increasing numbers of widely varying local sound regulations in all parts of the country. We believe, on the other hand, that federal regulations, established by the Environmental Protection Agency and protected by a strong federal preemption provision, will permit the public to continue to enjoy the benefits of mass production in their purchase of air-conditioning equipment.

> If a multiplicity of divergent state and local regulations were to be enacted, in lieu of a single set of overall federal regulations, manufacturers in our industry -- and in virtually every other industry selling products in interstate commerce -- could be forced to make numerous special short-production runs to meet the requirements of these local rules. The cost to the ultimate consumer would necessarily be higher, and there would be less likelihood of ready availability of replacement parts.[124]

B. Appropriate Implementation Techniques

By setting a requisite noise emission level before introduction into the market, Federal standards would have the advantage of eliminating competition based on noise. Since the entire industry is not convinced of the wisdom of noise abatement, this may be necessary to assure successful regulation. Indeed, J.E. Duff, director of research for the Hoover Co. has commented that for the Hoover company, excessive noise "is sort of a trademark."[125] As long as marketing is based on fulfilling a public demand for noise, voluntary or purchaser-oriented controls seem inadequate.

Finally, in regard to labelling, it should be remembered that in absence of Federal regulations and standards, states may well adopt a variety of standards. Since the states undoubtedly have the power to do this, such action would cancel the benefits of the more lenient labelling program. Moreover, it is highly unlikely that Federal labelling requirements will preempt states from implementing other techniques of noise control. For this reason, efficient regulation would best be served by adopting the stronger implementation technique at the Federal level.

C. Enforcement Alternatives

Enforcement alternatives available on either the Federal or

State level are largely those available for enforcing other types of noise control. The appropriate environmental agency could be charged with enforcement duty. Most likely, this agency will have developed the criteria and standards upon which the regulations are based. Such technical familiarity would give them a distinct advantage over other enforcement patterns and, probably, greater concern for vigorous exercise of their abatement authority.

Since the purchase of domestic equipment peculiarly affects individual consumers, the citizen suit is likely to figure strongly in enforcement patterns in this area. The liberal development of recent case law has relaxed standing requirements. It is conceivable that a class of consumers could now bring a suit to compel compliance with Federal standards. Some recent proposals on the Federal level have expressly created a citizens cause of action.

Also, buyer-seller relationships in the sale of goods could be affected by some types of regulations. Federal or State standards could become implied conditions of the sale. If so, the warranty provisions of the Uniform Commercial Code might create a cause of action for goods whose performance was substandard.[126] Viewed from the buyers' standpoint, such standards could be used as a measure of reasonable performance which the goods in question should have met.

A more difficult question arises from the seller's perspective. Suppose, for example, a purchaser can show injury from a product which is not substandard. Can the seller introduce the standard as a defense to any cause of action? Since many of the physiological and psychological effects of noise are not fully known, standards may not reflect the most desirable levels for human exposure. Even where the effects are known, other regulatory considerations such as "economic reasonableness" may outweigh implementation of a stricter standard. Under these circumstances, can the standard be introduced as a defense to damages arising out of the transaction or sale? The likelihood of such a case is remote but until standards can be fully relied upon as adequate protection to the harmful effects of noise, it might be necessary to legislatively prohibit their use in litigation.

In conclusion, it seems fair to say that for the reasons stated earlier -- lack of information, privacy, etc. -- the states have not been active in the abatement of domestic noise sources. This should not suggest a total lack of State interest. Testimony of the American Refrigeration Institute suggests this has not been the case. They cite experience with local jurisdictions "as far back as 1958 . . . seeking to set limits on the sound produced by air-conditioning equipment operated outside the home in residential areas."[127]

It is unlikely that the disregard for domestic noise exhibited by the states so far will persist as their increasing attention to other noise sources augments their technical sophistication. As they enter the regulatory pattern, all the questions of appropriate and efficient relationship to the economy and Federal government will arise anew. It would seem expedient to resolve them now while the question is being fully considered on the Federal level.

FOOTNOTES

[1] U.S., Federal Aviation Administration, "Adoption of Noise Type Certification Standards and Procedures," Federal Register, XXXIV, No. 221, Nov. 18, 1969, 18355-18379 [as amended by "Part 36-Noise Standards: Aircraft Type Certification (corrections)," Federal Register, XXXIV, No. 229, Nov. 29, 1969)].

[2] Ibid., p. 18361.

[3] U. S., National Aeronautics and Space Administration, Langley Research Center, NASA Acoustically Treated Nacelle Program, NASA SP-220, October 15, 1969 (NTIS: N70-13901 thru N70-13915).

[4] U.S., Department of Transportation, Federal Aviation Administration, Advance Notice of Proposed Rule Making, "Civil Airplane Noise Reduction Retrofit Requirements" (Docket No. 10664; Notice No. 70-44), Federal Register, XXXV, No. 215, Nov. 4, 1970, 16980-16983.

[5] S. 1566, 92d Congress, 1st Sess. (1971). Identical House Bills: H.R. 8642, H.R. 8534, H.R. 7812, and H.R. 7523.

[6] U.S., Department of Transportation, Federal Aviation Administration, Office of Noise Abatement, Economic Impact of Implementing Acoustically Treated Nacelle and Duct Configurations Applicable to Law Bypass Turbofan Engines, FAA-NO-70-11, Contract DOT-FA69WA-2150, July, 1970.

[7] Seago, "The Airport Noise Problem and Airport Zoning," 28 U. Md. L. Rev. 120 (Spring, 1968).

[8] Airport Highlights, Airport Operators Council International, Washington, D.C., June 7, 1971.

[9] Galloway, "Noise Exposure Forecasts as Indicators of Community Response," SAE/DOT Conference of Aircraft and the Environment, P-37, 2 Vols., Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001, 1971, Part 1, p. 61 (table).

[10] Airport Highlights, Airport Operators Council International, Washington, D. C., May 10, 1971.

[11] *Ibid.*

[12] For a description of the MANAPS program see Broun and Miller, "Land Use Strategies for Aircraft Noise Alleviation," *SAE/DOT Conference on Aircraft and the Environment*, *supra* n. 9, Part 1, pp. 64-74.

[13] *Ibid.*, p. 72

[14] Maynell, "International Regulation of Aircraft Noise," *SAE/DOT Conference on Aircraft and the Environment*, note 9 above, Part 1, p. 175.

[15] Tondel, "Federal Regulation of Aircraft Noise, the Legal Rights of Airport Neighbors, and Legal Aspects of Compatible Land Use," *SAI/DOT Conference on Aircraft and the Environment*, note 9 above, p. 197.

[16] *Jamaica Bay and Kennedy Airport: A Multidisciplinary Environmental Study*, 2 vols., Environmental Studies Board, National Academy of Sciences - National Academy of Engineering, Washington, D.C. 20418, 1971, vol. 2, p. 108.

[17] *Ibid.*

[18] *Lockheed Air Terminal, Inc., et al. v. The City of Burbank*, 318 F. Supp. 914 (1970).

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[20] Airport and Airway Development Act of 1970, sec. 16(c)(4); Public Law 91-258, 84 STAT. 219.

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[22] 49 U.S.C. § 1653 (f) (Supp. V).

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[25] 432 F. 2d 1307 (6th Cir.).

[26] *Citizens to Preserve Overton Park* v. *Volpe*, *supra* n. 21.

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[33] *American Airlines, Inc*. v. *City of Audubon Park, Ky.*, 407 F. 2d 1306 (6th Cir. 1969); *American Airlines, Inc*. v. *Town of Hempstead*, 398 F. 2d 369 (2d Cir. 1968), (cert. denied)393 U.S. 1017 (1969); *Allegheny Air Lines*, v. *Village of Cedarhurst*, 238 F. 2d 812 (2d Cir. 1956).

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[35] *American Airlines, Inc*. v. *Town of Hempstead*, *supra* n. 33.

[36] *Audubon Park* and *Cedarhurst*, *supra* n. 33.

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[43] *Op*. *Cit*., p. 6.

[44] *Ibid*.

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[47] *Ibid*.

[48] *Ibid*.

[49] 1969 California Statutes, chapter 1585, as amended by 1970 California Statutes, Chapter 912.

[50] Opinion of the Attorney General of the State of California, No. 69/216, February 27, 1970.

[51] *Ibid*.

[52] *Loma Portal Civic Club* v. *American Airlines, Inc.*, 61 Cal. 2d 582, 39 Cal. Rptr. 708 (1964).

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[54] *Ibid*., at 918, 919.

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[56] *City of Tacoma* v. *Taxpayers of Tacoma*, 371 p. 2d 938, 60 Wash. 2d 66 (1962).

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[64] *Ibid*.
9 Avi. at 18315.

[65] *Aircraft Owners and Pilots Association v. Port of New York*, 305 F. Supp. 93 (E.D.N.Y. 1969)

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[70] *Hines v. Davidowitz*, 312 U.S. 52 (1941).

[71] *Dean Milk Co.* v. *Madison*, 340 U.S. 349 (1951).

[72] *Southern Pacific Co*. v. *Arizona*, 352 U.S. 761 (1945). See also *Bibb* v. *Navajo Freight Lines, Inc*., 359 U.S. 520 (1959) but compare *South Carolina Highway Dept*. v. *Barnwell Bros.*, 303 U.S. 177 (1938).

[73] *Lockheed Air Terminal, Inc*. v. *The City of Burbank*, *supra* n. 18.

[74] *Southern Pacific Co*. v. *Arizona* and *South Carolina Highway Dept*. v. *Barnwell Bros*., *supra* n. 72.

[75] See Section 2.4.2.

[76] Apps, D., "Cars, Trucks and Tractors as Noise Sources," Noise as a Public Health Hazard, p. 320; Report Number 4, The American Speech and Hearing Association (1969).

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[78] Young and Woods, "Threshold Noise Levels," p.v. *Urban Traffic Noise Reduction*, Research Report Number 166-1, Texas Transportation Institute, College Station, Texas, (1970).

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[80] S. 1016, 920 Cong., 1st Sess. Sec. 11(a)(3) (1971).

[81] H.R. 6301, 920 Cong., 1st Sess., Sec. 102(a) (1971).

[82] H.R. 3028, Oregon Legislative Assembly, 1971 Regular Session, Sec. 7(4), (1971).

[83] S. 163, Oklahoma Legislature, 1971 Sess., Sec. 2, (1971); G.A. 368, New Jersey General Assembly 1970 Sess., Sec. 4(f), (1970); S. 678, Pennsylvania General Assembly, 1971 Sess., Sec. 5(1) (1971).

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[102] Assembly 3193, New York State Legislature, 1971 Reg. Sess., Sec. 1, (1971).

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Appendix A

FEDERAL-REGIONAL-STATE-AND-LOCAL NOISE CHART

Federal-Regional-State-Local Noise Chart

The purpose of this series of charts is to give the reader information about noise law at the four levels of government in a rapid but still somewhat detailed manner. The charts were designed to be used in the order in which they appear. The first chart indicates whether or not a certain level of government has enacted legislation to control each of the noise sources listed on the vertical axis. For instance, if all four levels of government have sought to control a certain noise source then four colored dots would appear in that row, red for Federal, red-green for regional, green for state, and blue for local law. The next three charts indicate the particular Federal agency, state government, or local government (of the 83 responses to a survey of 180 cities from all parts of the United States representing the full range of population) which has statutory law with respect to each noise source.

The final fold out chart attempts to give a rough understanding of the content of each statute. By following horizontally across the chart a colored legend of capital and lower case letters indicate each particular government that has enacted a statute or regulation with respect to that noise source. Any gaps that appear indicate that no law has been enacted for the selected noise source by the particular government examined.

Each individual legend may be decoded through the use of the appended key. Note that the key is divided into component groups of the law; authority, standards, implementation technique, coverage enforcement agent, and penalties/remedies. A complete law should have a letter from each of these component groups. If there is a component group for which no letter is given in a legend this indicates an omission from the law of any mention of that component. Sometimes more than one letter will appear from a component group. This indicates generally that both letters are applicable; for instance, of both O and P appear this indicates that the standard that is set is in both the 91-100 range and the 101+ range indicating either that one range applies presently while the more strict standard will apply at some time in the future or that one range applies to one situation and other ranges apply to other situations. In the case of penalties, fines or jail sentences two or more letters indicate that discretion is granted to the enforcing body or that the noise stringent penalty applies to second, third or subsequent offenses.

On the state and local level each new vertical column, which generally will start off with a new capital letter in the first alphabetical group, indicates a second statute or regulation by the selected government controlling the chosen noise source. A "/" indicates a new statute in those situations where there is overlap from the first column. At the Federal level a "/" is the only method used to separate two or more laws or regulations applying to one agency.

Note also that this coding helps to indicate trends and similarities of the laws on a particular noise source for different governments. Laws at one level that appear initially identical but in reality differ in the penalty scheme or enforcement area, as an example, show up quite quickly with this coding system. The reader is encouraged to use the chart in the order of this discussion (note the levels of government at which regulation exists with potential preemption problems that arise, note gaps in the legal framework for that noise source, interpret the individual legends and finally note similarities and differences at each level with respect to that noise source.) It is felt that this approach will quickly acquaint the reader with the present extent and competency of the regulation of a given noise source and indicate the direction that regulation of environmental noise must take to be effective in providing a noise free society.

Definitions

Authority

Regulatory Administrative - A legislature has established an administrative agency and directed it to regulate the noise source.

Regulatory Non-administrative - A statute which regulates the noise source directly without a delegation of power to an agency.

Advisory Administrative - An administrative agency is required to advise other agencies as to noise regulation.

Research and Development - Money is allotted for research and development concerning the noise source.

Standards Setting without Implementation - An agency is required to establish standards, but these standards will not have the force of law.

Review Administrative/Enabling Legislative - Either of two possibilities: review by a higher administrative body or legislation transferring the power to regulate a noise source to another, lower jurisdictional body. In the case of this being applied to a state, the second definition is the correct one and the proper interpretation is that a state has passed legislation authorizing the municipalities of that state to regulate the noise source.

Standards

Subjective - A non-objective standard such as "unreasonably" or "unnecessary."

Objective in dB ("B" or "C" weighted) - A standard setting a decibel limit either emphasizing base tones ("C") or unweighted ("B").

Objective in dBA - A standard setting a decibel limit measured using an A weighted scale.

Objective in dB/dBA loss - A unit, used primarily in building characteristics, requiring a certain amount of insulation in terms of the reduction in noise level in transit through the building material.

Objective in PNdB - A standard setting a PNdB limit.

Objective in EPNdB - A standard setting an EPNdB limit.

Composite Unit - Some unit other than a decibel-related unit is used in the measurement of the noise.

Range 30-40 - The rahge of the unit used above is 30-40, e.g., 30 dBA.

Range 41-50 - The range of the unit used above is 41-50.

Range 51-60 - The range of the unit used above is 51-60.

Range 61-70 - The range of the unit used above is 61-70.

Range 71-80 - The range of the unit used above is 71-80.

Range 81-90 - The range of the unit used above is 81-90.

Range 91-100 - The range of the unit used above is 91-100.

Range 101+ - The range of the unit used above is over 100.

Measuring distance - Measurement of noise made within this distance in feet from the noise source.

Implementation Technique

Certification - The law requires a prior permit of certification of equipment, machinery or vehicle as being in compliance with standards before use or sale of the item is permitted. Periodic inspections may also be included.

License and Permit - The law grants a license to pollute with noise up to a certain level or authorizes someone to grant licenses.

Curfew - The law prohibits noise during certain periods of time, probably during the night.

Zonal - Noise is prohibited or regulated in a certain area.

Property Line Spill-over Noise Limit - The law specifies measurement at or in relation to a property line. The concern is with noise that affects areas beyond the property line of the noise maker.

Accessory Device to Muffle - The law requires some device to cut down the noise introduced into the nevironment from the source.

Anti-degradation - The law prohibits noise that would increase the level of noise in society.

Coverage

Citizens in General - The law applies to all persons.

Owners, Operators, and/or Agents - The law applies to persons in these positions.

Manufacturers/Industry - The law applies to manufacturers and industrial operations.

Contractors - The law applies to private contractors generally on construction operations or contractors with a government.

Enforcement Agent

Administrative Action - The law is enforced by some action taken by an administrative agency.

General Police - The law specifies that the police of the state or municipality shall enforce the law.

Special Noise Control or Environmental Police - The law is enforced by a special group of agents set up specifically to enforce this law or environmental laws in general.

Private Groups or Individuals - Private individuals may act as agents for enforcement. An example of this is a private suit for civil damages or a qui tam action.

Penalties and Remedies

Civil Damages - The law provides for the remedy of civil damages against the polluter.

Cessation of Operations - The law provides that a violation will result in cessation of operations or an injunction or restraining order is an appropriate remedy.

Criminal Fine ≤$50 - The law specifies a fine the maximum of which may not be greater than $50.

Criminal Fine $51-$150 - The law specifies a fine the maximum of which may not be less than $51 nor greater than $150.

Criminal Fine $151-$300 - The law specifies a fine the maximum of which is between $151-$300.

Criminal Fine $300+ - The law specifies a fine the maximum of which is above $300.

Criminal Imprisonment -30 days - The law specifies that a violation subjects the polluter to imprisonment the maximum duration of which is less than or equal to 30 days in jail.

Criminal Imprisonment 31-90 days - The law specifies that a violation subjects the polluter to imprisonment the maximum duration of which is less than 90 days and greater than 30 days.

Criminal Imprisonment 91 days - The law specifies that a violation subjects the polluter to imprisonment the maximum duration of which is greater than 90 days.

Action Against Certificate/Permit - The law provides that a violation may result in the revocation of the certificate or that if the standards are not met, the certificate will not be issued.

Confiscation of Noise Source - The law provides that a violation will result in the noise source being removed from the control of the polluter.

Warning and Forced Repair - The law specifies that a violation may result in a warning being issued and/or the polluter being forced to repair the source.

Denial of Funds - The law specifies that a violation or a failure to meet prescribed standards will result in denial of funds for the noise-producing activity.

KEY

Authority

A	Regulatory Administrative
B	Regulatory Non-administrative
C	Advisory Administrative
D	Research and Development
E	Standards Setting without Implementation
F	Review Administrative/Enabling Legislation

Standards

G	Sugjective
H	Objective in dB("B" or "C" weighted)
I	Objective in dBA
J	Objective in dB/dBA loss (STC, INR, etc.)
K	Objective in PNdB
L	Objective in EPNdB
M	Composite Unit (NEF, CNR, CNEL)
N	Range 101+
O	Range 91-100
P	Range 81-90
Q	Range 71-80
R	Range 61-70
S	Range 51-60
T	Range 41-50
U	Range 30-40
V	Measuring Distance 0-40 Feet
W	Measuring Distance 41-60 Feet
X	Measuring Distance 61+ Feet

	Implementation Technique
Y	Certification
Z	License or Permit
a	Curfew
b	Zonal
c	Property Line Spill-over Noise Limit
d	Accessory Device to Muffle (e.g. muffler laws)
e	Anti-degradation

	Coverage
f	Citizens in General
g	Owners, Operators, and/or Agents (Public or Private)
h	Manufacturers/ Industry
i	Contractors (Public or Private)

	Enforcement Agent
j	Administrative Action
k	General Police
l	Special Noise Control or Environmental Police
m	Private Groups or Individuals

	Penalties and Remedies
n	Civil Fines/Damages
o	Cessation of Operations
p	Criminal Fine = $50
q	Criminal Fine $51 - $150
r	Criminal Fine $151 - $300
s	Criminal Fine $300+
t	Criminal Imprisonment = 30 days
u	Criminal Imprisonment 31-90 days

	Penalties and Remedies (cont.)
v	Criminal Imprisonment 90 days +
w	Action Against Certificate/License/Permit (Revoke, Amend, Deny)
x	Confiscation of Noise Source
y	Warning and/or Forced Repair
z	Denial of Funds

NOISE REGULATION BY JURISDICTIONAL LEVEL

	FEDERAL	REGIONAL	STATE	LOCAL
GENERAL	●		●	●
TRANSPORTATION Aircraft	●	●*	●	●
Automobile & Truck	●		●	●
Motorcycle			●	●
Boats			●	●
Snowmobile			●	●
Operational Limits			●	●
COMMERCIAL Nonadvertising			●	●
Advertising			●	●
INDUSTRIAL	●		●	●
CONSTRUCTION Site Noise	●		●	●
Building Acoustics	●		●	●
OCCUPATIONAL	●		●	●
DISTURBERS of the PEACE			●	●
DOMESTIC				●
SOUND EQUIPMENT (noncommercial)				●
ANIMALS				●

* Regional level, regulation of Aircraft Noise is by the Port of New York Authority

FEDERAL LEVEL	AEC	AIR FORCE	ARMY	DOD	DOI	DOL	DOT	EPA	FAA	FHA	FHWA	FPC	GSA	HEW	HUD	NAVY
GENERAL				●				●								
TRANSPORTATION Aircraft		●	●				●		●							●
Automobile & Truck							●				●					
Motorcycle																
Boats																
Snowmobile																
Operational Limits																
COMMERCIAL Nonadvertising																
Advertising																
INDUSTRIAL												●				
CONSTRUCTION Site Noise			●			●										
Building Acoustics			●							●			●		●	
OCCUPATIONAL	●	●			●	●								●		●
DISTURBERS of the PEACE																
DOMESTIC																
SOUND EQUIPMENT (noncommercial)																
ANIMALS																

*U.S. GOVERNMENT PRINTING OFFICE: 1972-452-636/600

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STATE LEVEL	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	HAWAII	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	
GENERAL					●	●			●		●		●					
TRANSPORTATION Aircraft					●													
Automobile & Truck	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Motorcycle					●	●					●							
Boats													●			●		
Snowmobile						●												
Operational Limits	●		●	●		●				●						●		
COMMERCIAL Nonadvertising						●		●										
Advertising														●				
INDUSTRIAL						●												
CONSTRUCTION Site Noise						●												
Building Acoustics					●						●							
OCCUPATIONAL					●	●		●	●		●	●		●		●	●	●
DISTURBERS of the PEACE		●	●		●		●						●		●	●	●	●
DOMESTIC																		
SOUND EQUIPMENT (noncommercial)																		
ANIMALS																		

B

KANSAS	KENTUCKY	LOUISIANA	MAINE	MARYLAND	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOMA	OREGON	PENNSYLVANIA	RHODE ISLAND	
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DA	NEW HAMPSHIRE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOMA	OREGON	PENNSYLVANIA	RHODE ISLAND	SOUTH CAROLINA	SOUTH DAKOTA	TENNESSEE	TEXAS	UTAH	VERMONT	VIRGINIA	WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING
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	ANN ARBOR, Mich.	ASPEN, Colo.	BEVERLY HILLS, Calif.	BILLINGS, Mont.	BINGHAMTON, N.Y.	BIRMINGHAM, Ala.	BISMARCK, N.D.	BOSTON, Mass.	BOULDER, Colo.	BUFFALO, N.Y.	CHICAGO, Ill.	CINCINNATI, Ohio	CLEVELAND, Ohio	DALLAS, Tex.	DECATUR, Ill.	DENVER, Colo.	DES MOINES, Iowa	DE
GENERAL	●	●	●		●	●	●	●	●	●			●	●	●	●		
TRANSPORTATION Aircraft																●		
Automobile & Truck	●	●	●	●		●	●		●	●	●	●	●	●	●	●	●	●
Motorcycle										●	●		●	●				●
Boats						●				●	●		●	●	●		●	
Snowmobile											●							
Operational Limits	●		●			●	●			●	●	●	●	●	●		●	●
COMMERCIAL Nonadvertising	●		●			●				●	●	●	●	●	●			●
Advertising	●		●			●	●				●		●	●	●			●
INDUSTRIAL			●											●				
CONSTRUCTION Site Noise	●		●							●	●			●	●			
Building Acoustics																		
OCCUPATIONAL																		●
DISTURBERS of the PEACE	●		●				●			●	●		●		●	●	●	●
DOMESTIC											●							
SOUND EQUIPMENT (noncommercial)	●	●	●			●				●	●	●	●	●		●	●	●
ANIMALS	●		●			●				●			●	●	●			

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ATUR, Ill.	DENVER, Colo.	DES MOINES, Iowa	DETROIT, Mich.	DILLON, Colo.	EL PASO, Tex.	FLAGSTAFF, Ariz.	FORT LAUDERDALE, Fla.	GREENSBORO, N.C.	HARTFORD, Conn.	HELENA, Mont.	HOUSTON, Tex.	INDIANAPOLIS, Ind.	JACKSONVILLE, Fla.	JUNEAU, Alas.	KANSAS CITY, Kan.	KILLEEN, Tex.	LAS VEGAS, Nev.	LITTLE ROCK, Ark.	LOS ANGELES, Calif.	MADISON, Wisc.	MANCHESTER, N.H.	MEDFORD, Oregon	MEMPHIS, Tenn.	MIAMI
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ORD, Oregon	MEMPHIS, Tenn.	MIAMI BEACH, Fla.	MILWAUKEE, Wisc.	MINNEAPOLIS, Minn.	MISSOULA, Mont.	NASHVILLE, Tenn.	NEW HAVEN, Conn.	NEW ORLEANS, La.	NEW YORK CITY, N.Y.	NORFOLK, Va.	OGDEN, Utah	OKLAHOMA CITY, Okla.	PARK RIDGE, Ill.	PHILADELPHIA, Pa.	PHOENIX, Ariz.	POCATELLO, Ida.	PORTLAND, Oregon	RICHMOND, Va.	ROCHESTER, N.Y.	ST. LOUIS, Mo.	SALT LAKE CITY, Utah	SAN CLEMENTE, Calif.	SAN FRANCISCO, Cal	SANT
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RK RIDGE, Ill.	PHILADELPHIA, Pa.	PHOENIX, Ariz.	POCATELLO, Ida.	PORTLAND, Oregon	RICHMOND, Va.	ROCHESTER, N.Y.	ST. LOUIS, Mo.	SALT LAKE CITY, Utah	SAN CLEMENTE, Calif.	SAN FRANCISCO, Calif.	SANTA BARBARA, Calif.	SCOTTSBLUFF, Neb.	SCRANTON, Pa.	SEATTLE, Wash.	SIOUX FALLS, S.D.	TOLEDO, Ohio	UNIVERSITY HEIGHTS, Oh.	WASHINGTON, D.C.	WHITE PLAINS, N.Y.	WICHITA, Kan.	WILMINGTON, Dela.
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A

	ATOMIC ENERGY COMMISSION								AIR FORCE								ARMY							
	ALABAMA	ANN ARBOR, Mich.	ALASKA	ASPEN, Colo.	ARIZONA	BEVERLY HILLS, Calif.	ARKANSAS	BILLINGS, Mont.	CALIFORNIA	BINGHAMPTON, N.Y.	COLORADO	BIRMINGHAM, Ala.	CONNECTICUT	BISMARCK, N.D.	DELAWARE	BOSTON, Mass.	FLORIDA	BOULDER, Colo.	GEORGIA	BUFFALO, N.Y.	HAWAII	CHICAGO, Ill.	IDAHO	
GENERAL		BGef		BIQcefru		BGefosv			F	BHSTUcfoqt	AGefj	BGef		BGef		BGef	A	BIQcefr		Ai BGef	AB jG ka of s v			
TRANSPORTATION Aircraft									AHR-NVdij/AHQPOdgjo/ Cb/CKMNOX Aj Hw M Q/ R ZA c g										CKMNOX					
Automobile and Truck	BGdg	BIPVdg		BIQVgru	BGdg	BGegosv	BGdg	BGdg	BB II PP QW We eh g		BF IIB PPG WOd eWg he rg	BGdg	BB GI ep gg	BGdg	BGdg		BGdg	BIPVabgr	BGdg	BGeg		BB II PP QQ WW ee ng ll rr ss uu	BIOVdg	BIOVdgpq
Motorcycle									BB II PO WP eW ge h		BF II PP WO eW he rg									BGeg	BGdg	BB II QS PQ QW We eg hl lr rs su u	BIOVdg	
Boat												BGd								BGd		Be Ig PI Qr Ws u		
												g								g				
Snowmobile											BF II PP WW ee											BB II PP QW Wb eg hl lr		

Y						DEPARTMENT OF DEFENSE B								DEPARTMENT OF THE INTERIOR								DEPARTMENT OF LABOR								DEPARTMENT OF TRANSPORTATION						
RGIA	BUFFALO, N.Y.	HAWAII	CHICAGO, Ill.	IDAHO	CINNCINNATI, Ohio	ILLINOIS	CLEVELAND, Ohio	INDIANA	DALLAS, Tex.	IOWA	DECATUR, Ill.	KANSAS	DENVER, Colo.	KENTUCKY	DES MOINES, Iowa	LOUISIANA	DETROIT, Mich.	MAINE	DILLON, Colo.	MARYLAND	EL PASO, Tex.	MASSACHUSETTS	FLAGSTAFF, Ariz.	MICHIGAN	FORT LAUDERDALE, Fla.	MINNESOTA	GREENSBORO, N.C.	MISSISSIPPI	HARTFORD, Conn.	MISSOURI	HELENA, Mont.	MONTANA	HOUSTON, Tex.	NEBRASKA	INDIANAPOLIS, Ind.	NEVADA
Ai	B G e f	AB jG ka of s v				A Bc Gf cj fm o s	B G e f	AHV-Regj	B G e f		B G e g j r		B H S c f								B G e f k				B G e f	F	B G e f		B G e f				B G e f		B G e f q t	BB GH eU fT S R Q a c f
NOX													B G e g													A b					D (see FAA)					
	B G e g		BB II PP QQ WW ee ng ll rr ss uu	B I O V d g	B I O V d g p q	B G d g	B d g P	B G d g	B G d g	B G d g		B G d g	B G d g	B G e g	B G d g	B G d g	B G e g	B G d g		B G d g	B G e g k	B G e g	B G d g	B G d g	B G d g	BB II PP WW ee gh	B G d g	B G d g	B G d g	B G e g	D (see FHWA) B G d g	B G d g	B G d g	B G d g	B G d g q t	B G e g
	B G e g	B G d g	BB II QP PQ QW We eg hl lr rs su u	B I O V d g			B G e g p t		B G e g								B d g p				B G e g k			B G d g	B G e g	BB II PP WQ eW ge h	B G e g		B G e g		D (see FHWA)		B G e g		B G d g q t	B d g
	B G d		Be Ig PI Qr Ws u			B G d g	B G d		B G d		B d g	B G d g			B G d										B G d				B G d				D B G d	B G d g	B G d	
	g						g p t		g		r				g										g				g				g		g q t	
			BB II PP QW Wb eg hl lr rs															B G d g r	B b g			BB II QQ WW ee gh										BB IG Pd Vg el h	D			

TMENT OF PORTATION						ENVIRONMENTAL PROTECTION AGENCY								FEDERAL AVIATION ADMINISTRATION								FEDERAL HIGHWAY ADMINISTRATION								FEDERAL HOUSING ADMINISTRATION							
	ANA	HOUSTON, Tex.	NEBRASKA	INDIANAPOLIS, Ind.	NEVADA	JACKSONVILLE, Fla.	NEW HAMPSHIRE	JUNEAU, Alas.	NEW JERSEY	KANSAS CITY, Kan.	NEW MEXICO	KILLEEN, Tex.	NEW YORK	LAS VEGAS, Nev.	NORTH CAROLINA	LITTLE ROCK, Ark.	NORTH DAKOTA	LOS ANGELES, Calif.	OHIO	MADISON, Wisc.	OKLAHOMA	MANCHESTER, N.H.	OREGON	MEDFORD, Oregon	PENNSYLVANIA	MEMPHIS, Tenn.	RHODE ISLAND	MIAMI BEACH, Fla.	SOUTH CAROLINA	MILWAUKEE, Wisc.	SOUTH DAKOTA	MINNEAPOLIS, Minn.	TENNESSEE	MISSOULA, Mont.	TEXAS	NASHVILLE, Tenn.	UTAH
	B G e f		B G e f q t		BB GH eU fT S R Q a c f				CD		B G e f r	A	B G e f			AA ee ff kj so			B G e f q		B G e f p		B G e f	A j	B G e f		B G e f				B H T S R Q P ab cf						
	ee FAA)															ALONXYgjw																					
	ee FHWA) B G d g	B G d g	B G d g q t		B G e g	B G d g		B G d g	B G d g	B G d g	B G d g r	B IB PG Wd eg g	B G d g	B G d g	B G d g	B G d g		B d g	B H O V d g	B G d g	B G d g p	highway noise standards (7/72) AZijz B G e g	B G d g	B G d g p t	B G d g	B G d g	B G d g	B G d g	B G d g	B G d g	BB II PP WW ee gh	B G d g	B d g	B G d g	B G d g	B G d g	
	ee FHWA) B G e g		B G d g q t	B d g							B G e g r	B IB PG Wd eg g	B G e g									highway noise standards (7/72) AZijz		B G d g p t	B G e g		B G e g				BB II PO WP eW ge h		B d g				
	D B G d	B G d g	B G d									B G d	B G d								B G d			B d g			B G d		B G d								
	g		g q t									g	g								g p			j p t			g		g								
	D											B I P Q W											highway noise standards (7/72) AZijz														

RAL HOUSING NISTRATION						FEDERAL POWER COMMISSION D								GENERAL SERVICES ADMINISTRATION						DEPARTMENT OF HEALTH, EDUCATION & WELFARE				DEPARTMENT OF HOUSING & URBAN DEVELOPMENT			
NNESSEE	, Minn.	MISSOULA, Mont.	TEXAS	NASHVILLE, Tenn.	UTAH	NEW HAVEN, Conn.	VERMONT	NEW ORLEANS, La.	VIRGINIA	NEW YORK CITY, N.Y.	WASHINGTON	NORFOLK, Va.	WEST VIRGINIA	OGDEN, Utah	WISCONSIN	OKLAHOMA CITY, Okla.	WYOMING	PARK RIDGE, Ill.	PHILADELPHIA, Pa.	PHOENIX, Ariz.	POCATELLO, Ida.	PORTLAND, Oregon	RICHMOND, Va.	ROCHESTER, N.Y.	ST. LOUIS, Mo.	SALT LAKE CITY, Utah	SAN CLEMENTE, Calif.
						B G e f		B G e f		BB GG be ff pp q				B G e f		B H P X e f r		BB GG eb ff pp	B G e f	B G e f q t	B G e f k	B G e f	B H T R b c h			B G e f k	
																B H O b g r					B H P b c g				B G b g		
	B d g	B G d g	B G d g		B G d g		B d e p	B G d g	B G d g	B G d g p q	B G d g	B G d g	B G d g	B G e g	B G d g	B H P X e g r	B G d g	B d e g p	B G d e g	B I O V d g q t	B G d g	B G e g / B g d g			B G d g		
	B d g									B G e g p q				B G e g					B G e g	B I O V d g q t	B G e g	B G e g					
														B G d	F				B G d		B G d	B G d					
												g							g		g	g					
															B d g p												

E

ENT OF EDUCATION RE		DEPARTMENT OF HOUSING & URBAN DEVELOPMENT				NAVY											
PORTLAND, Oregon	RICHMOND, Va.	ROCHESTER, N.Y.	ST. LOUIS, Mo.	SALT LAKE CITY, Utah	SAN CLEMENTE, Calif.	SAN FRANCISCO, Calif.	SANTA BARBARA, Calif.	SCOTTSBLUFF, Nebr.	SCRANTON, Pa.	SEATTLE, Wash.	SIOUX FALLS, S.D.	TOLEDO, Ohio	UNIVERSITY HEIGHTS, Ohio	WASHINGTON, D.C.	WHITE PLAINS, N.Y.	WICHITA, Kan.	WILMINGTON, Dela.
BGef	BHTRbch			BGefk		BGef					AGefl		BGef	BGefqt	BGef	BGef	
			BGbg			BIMQeg	CK Bbgq	MNOX									
BGeg/Bgdg			BGdg				Bdgq	BGdgp	BGdgru	BGdg			BGdg		BGdg	BGdg	
BGeg								BGdgp							BGeg		
BGd													Bdg				
g																	

F

						g				g		
Snowmobile						BF II PP WW ee hg r					BB II PP QW Wb eg hl lr rs su u	
Operational Limits	BGdg BGdg		BGdg BIPXdgosv			BGdg BGdg	BGdg			BGdg BGdg	BGdflr	BGdgp
COMMERCIAL Nonadvertising	BGabgh		BHgosv			BISacgmos BGbg		AGZgw		BGeg	BB aG ga lb rg sq u	BGegr
Advertising	BGef		BGbfosv			BGef	BGeg			Beg	BGaglrsu	
INDUSTRIAL			BHhosv			Bo Is R Q a c h m					Bb Hh Ql Rr Ss Tu	
CONSTRUCTION Site Noise	Babg		BGabgosv			BIQacgmos				AHPdijz Bag	Bh Il Or Ps Qu W	
Building Acoustics					BITai						A	

g			gpt	G g		r	g				g		g		g	gqt		
	BB II PP QW Wb eg hl lr rs su u								BGdgr Bbg		BB II QQ WW ee gh qq					D BB IG Pd Vg el h l		
BGdg	BGdflr	BGdgp	BGdg	BGdg	BGdgr	BGdg	BGdg	BGdg	BGdgr	BGdg BGdgk		BGdg BGdg	BGdg	BGdg	D (see FAA & FHWA) BGdg	BGdg	BGdgqt	BGdg
BGeg	BB aG ga lb rg sq u	BGegr	Bbgpt/BZagpw	BGeg	BGegr		Beg	BGeg		BGeg	BGeg	BGag/BGabg	BGeg FG	BGag		BGeg	BGegqt F	BGabg
Beg	BGaglrsu		BGZfpt	BGeg F	Begr		Beg	Bbg/BGeg		BGag		BGag	Beg BGef	BGeg		BZabg	BGegqt	BGef
	Bb Hh Ql Rr Ss Tu			BHPQRSTbcg														BHUTSRQabh
dijz Bag	Bh Il Or Ps Qu W			Babg	Babgr							AIONVdijz	Babg	Babg		Bag	Bagqt	Bag
A																		

g	gqt		H			g	g			gp		jpt		g	g						
D						BIPQWdh						highway noise standards (7/72) AZijz									
FAA & FHWA) BGdg	BGdgqt	BGdg	BGeg		BGdgr		BGdg	BGdg	BGegq/BGeg	BGdgp	BGdg	BGdg	BGdg	BGdg	BGdg	BGdg	BGadg	BGdg	BGdg	BGdg	
BGeg	BGegqt F	BGabg		BGef	BGZgjw	BGag	BGeg			BGegp		BGabg	BGeg	BGeg	Bag		BGcg		BGZgw	BGeg	BB GH aS g g o
BZabg	BGegqt	BGef	Fr		BGefkr		BGeg		BGagw	BGegp			BGef	BGef	BGag		Beg			BGeg	
		BHUTSRQabh		BHUSabch			BHUTSRch							BGah	BGabh		BHUTSRQabch				
Bag	Bagqt	Bag					Babg			Bagp		Bag	Babg				BB aH gO /P Bc Hg P c g				
						AJ									BGeg		AMUbgjz/AJUTdgjz				

				I		g				g	g	g			
							B d g p								
B G d g	B G d g			B G d g	B G d g p q		BB GG ad dg g	B G d g	B G d g p	B G d g	B G d g	B G d g		B G d g	B G b g
B G Z g w	B G e g	BB GH aS gc g o	B a g	AGZgjw B G e g	B G e g p q		B G e g			B G e g	B G b g	B G e g	B e f	B G a g	B G Z a b f
	B G e g		B G a b g	B G e g	B G e g p q	BB Ge Zg a f	B G e g		BB eG gb pg p	BB GH eR gW z a g	BB GG Za bb gg	B e g / B b g	B H O Z b g s u	B G Z g	B G Z a b f
						B G b h					B G b h / B G d h	B G b g			
			B a b g				AJTij B a b g		B a g p	B a b g	B a g		B a g		
jz/AJUTdgjz				AA HJ OS ↓↓ UU VV ↓Z Xg Zj gw j w			AJUTdij / AHUTdij						AIQ-TMUbgjz		

g												
BGdg		BGdg	BGbg	BGbg	BGdgp	BGdgru			BGdg	BGdgqt	BGdg	
BGeg	Bef	BGag	BGZabf		Babgp	BGagru	BGeg	AGZfjqw	Beg	BB GI eS gc qg to q t	BB GG ee gg j x y	
Beg/Bbg	BHOZbgsu	BGZg	BGZabf		Begp	Befru			BGabg/Beg	BB GG eZ ga qb tg q t	BGag	BGeg
BGbg						BGdgru	BGbh		BHUTSRQbh		BGehjxy	
	Bag								Babg	Bagqt		
	AIQ-TMUbgjz											

CONSTRUCTION Site Noise	Babg		BGabgo sv			m BIQacg mos				AHPdijz Bag	Bh Il Or Ps Qu W	
Building Acoustics					BITai						A	
OCCUPATIONAL		AIONVZdgjw			AHONVdhj	AIONVdhj AHOPVdgj		AIONVdhj	AG	AHOPVdgj	AHPVehj	AIONVdhj
DISTURBERS of the PEACE	BGef		BGefru BGbfosv		BGefry	FG	BGef			BGef	BGbfp	
DOMESTIC											Be Ih Pl Qr Rs Wu	
SOUND EQUIPMENT (noncommercial)	BGeg		BHZafosv			BGef	BGef			BGZabf	BGeflrsu	BGefp
ANIMALS	BGef		BGefosv			BGef				BGef		

K

dijz Bag	Bh Il Or Ps Qu W			g Babg	Babgr							AIONVdijz	Babg	Babg		Bag	Bagqt	h Bag
A																		
PVdgj	AHPVehj	AIONVdhj		AIONVdhj		AIONVdhj	AIONVdhj	AIONVdgjy AIOPeh	AIONVdhj			AIONVdijz/ AIONVdhjnsv AIONVdhj		AIONVdhj	AIONVdhj			
BGef	BGbfp		FG BB GG ee ff pp t u v		F BGefr	BGefqu BGef	FG BGef	BGefqu BGbf	BGbfp		BGbf	BGef	F	BGefsv F	BGef	BGef	BB GG be ff BGefqt	
	Be Ih Pl Qr Rs Wu												BGeg					
	BGeflrsu	BGefp	BGefpt	BGef		BGef	BIOWQXZab	BGeg		BGegk	BGZf	BGeg	BGef	BGeg		BB GG eZ ga b g	BB GH eN gV qa tg q t	Bbg
			BGefpt	BGef L	BGegr					BGefk		BGef	BGef			BGef	BGefqt	BGef

Bag		Bagqt	Bag							Babg				Bagp			Bag			Babg				BB aH g0 /P Bc Hg P c g				
								AJ															BGeg	AMUbgjz/AJUTdgj				
				AIONVdhj	AIONVdhj	AGehjpqtu				AIONVdhj					AIONVdhj			AIONVdhj							AIONVdhj			AHONVdhj
BGef	BB GG be ff	BGefqt			Fr	BB GGF ee ff	BGefq		BGef		BGef	BGefr	B GF a f	BGefp		BGef	F		BGef	BGbfk				BGef/BGabf	BGefsu	B GF e f r	B GF e f r	BGefp
																								BGaf				
BB GG eZ ga b g		BB GH eN gV qa tg q t	Bbg		FGZgjw		BGaegr		BGeg		BGeg	BGegq		BGegp		BGeg			BGeg		BGeg	BGbg		Bbg/BGeg		BZgw	BGeg	
BGef		BGefqt	BGef						BGef		BGefj	BGefq		BGefp		BGef			BGef		BGef	BGef					BGef	

M

		Babg				AJTij Babg	Bagp	Babg	Bag		Bag		
gjz/AJUTdgjz			AA HJ OS J↑ UU VV ↓Z Xg Zj gw j w		AJUTdij / AHUTdij						AIQ-TMUbgjz		
	AHONVdhj		AHOdhj AIONVdhj	AIONVdhj	AHNdhj		BHIONh		CEIONVdg				
BGFefr	BGFefr	BGefp BB GG ab ff pq	BGFbf	BGbfpq	BGefru	BGef BGefpt		BGef			BGef/BGbf		
							BGefp						
BZgw	BGeg	Beg	BGeg	BGegpq	BGZaf	BGeg		BGeg	BGZg	BGeg/BGag	BZabfrv	BB GG Zc af b f j w	BGZabf
	BGef		BGef	BGefpq		BGef		BGef	BGef	BGef	BGef	BGefk	

+N

		Bag											Babg	Bagqt		
		AIQ-TMUbgjz														
Vdg							AIP	ONVdgj								
		BGef/BGbf							BGefru	BGef			BGef	BGegqt		
									BGagru					BB GI aS fc qg to q t		
BGeg/BGag			BZabfrv	BB GG Zc af b f j w	BGZabf	BB GG bb ef f s v			BGefru				Beg/BZg	BGegqt	BZg	BGag
BGef			BGef	BGefk		+0			BGefru				BGef	BGefqt	BGef	BGef

Appendix B

ENVIRONMENTAL NOISE ABATEMENT AND CONTROL STRUCTURE

A

ENVIRONMENTAL NOISE ABATEMENT AND CONTROL S

(Illustrative Regulatory Matrix)

1971-72 BASELINE CONDITIONS

REGULATORY CONFIGUR

1 NOISE SOURCES AND NOISE ENVIRONMENTS

Transportation

Engine Noises
- Aircraft
- Automobile
- Motorcycle
- Bus
- Boat
- Railroad
- Snowmobile
- Subway

Vehicle Support System
- Tires
- Air Cushion
- Wheels and Rails (Subway)
- Brakes
- Transmissions

Other
- Horns and Whistles—
  - Operating Procedure
- Defects which produce grating, grinding, rattling, etc., overloading
- Aerodynamic

Industrial

Raw Material
- Mining and Quarrying
- Transport
- Processing

Manufacturing and Fabrication
- Blower
- Compressors
- Process Machines
- Presses
- Pumping Engines
- Test Stands
- Outside Exhaust Lines
- Power Transformer
- Ventilation Equipment

Commercial

Office Noise
- Restaurants
- Drugstores
- Bars
- Cooling Towers
- Air Conditioners
- Loading and Unloading of Supplies and Merchandise
- Noisemakers for Advertising Purposes
- Gas Stations
- Car Washes
- Transportation Terminals
- Individual Peddlers and Vendors
- Speedways
- Athletic Contests
- Other Recreational Activities

Construction Noise

Public
- Building Construction
  - Demolition
  - Excavation
  - Pile Drivers
  - Pneumatic Hammers
  - Riveting Guns
  - Steam or Electric Hoists
  - Loading and Unloading of Supplies
- Highway Construction and Maintenance
  - Air Compressors
  - Road Graders
  - Earth Movers
  - Steam Shovels
  - Asphalt-making Machines
  - Pneumatic Hammers
  - Earth Tampers

Community Services

Public Safety and Communications Equipment
- Sirens
- Whistles
- Loudspeakers
- Sound Trucks

Garbage Trucks

Pavement Breakers

Domestic

Indoor
- Kitchen
  - Blenders
  - Garbage Disposals
  - Electric Mixers
  - Dishwashers
  - Refrigerators
  - Electric Can Openers
  - Exhaust Fans
- Laundry
  - Washers
  - Dryers
- Bathroom
  - Faucet Aerators
  - Electric Toothbrushes
  - Electric Shavers
  - Toilets
  - Bathtubs, Showers
- Living Room
  - Television
  - Hi-Fi, Stereos, Phonograph
  - Radio
- General
  - Vacuum Cleaners
  - Air Conditioners
  - Fans
  - Hair Dryers
  - Power Tools
  - Telephones
  - Heaters
  - Pipes and Faucets
  - Pumps
  - Recreation
  - Pets and Animals
  - Children's Toys
  - Noises from Neighbors

Outdoor
- Lawnmowers
- Power Trimmers
- Power Saws
- Recreation
- Children's Toys
- Fireworks
- Noises from Neighbors

Noise Environments
- Airports
- Highways – Traffic
- Highway Construction
- Building Construction Site
- Urban Traffic
- Public Events
- Domestic and Neighborhood
- Recreational
- Industrial: Mining
  - Quarrying
  - Processing
  - Fabrication
- Commercial – Markets
- Occupational

2 NOISE EFFECTS

Nature of Effect on: Operator
User
Others

Diminished Use of Property

Diminished Enjoyment

Annoyance

Interference with conversation

Hearing Loss

Heart Attacks

Mental Disturbance

Loss of Sleep

Fear of Aircraft

TV Static

Structural Damage

Diminished Work Efficiency due to....

Loss in School Time – Effective

Wildlife and Domestic Animals

General

Diminished quality of:
- General Home Environment
- General Social Environment
- General Work Environment

Characteristics of Noise Effects

In various technological projects noise may result during the
- Implementation Stage
- Operational Stage

Effects May Be:

Planned or Derivative

Inevitable, Probable or Possible

Great, Moderate or of Marginal Magnitude

Direct or Indirect

Immediate or Remote

Brief Duration or Persistent

Reversible or Irreversible re Impact

Closed or Open-Ended (Lead to Derivative Effects)

Passively Absorbed or Trigger Positive Action by Affected Participants

3 SOCIAL IMPACT EVALUATION OF EFFECTS

Social Cost Measurements

Cost to abate noise at the source
- Engine Nacelles
- Quiet Engine R&D

Cost to Retrofit

Cost to comply with more stringent noise standards

Cost to replace noise source with less noisy machinery

Cost to remove all residents and businesses within a given NEF line or contour — 40 NEF

Cost to move noise source

Cost to soundproof

Cost to construct buffers

Cost of easements

Reduction in land values resulting from noise intrusion

Cost of medical treatment for hearing loss

Cost in terms of lost work time

Jury determinations – damage

Workmen compensation awards

Amount of fines/penalties

Cost of substituting non-noise making activity

Cost to label/inform consumers

Cost to design and administer a noise abatement program with respect to given Effects (a measure of the Social Cost of the Effects)

Benefits of noise-producing activities which are weighed against noise intrusion; Comparative scales

4 OBJECTIVES AND FUNCTIONS

- Research on effects of noise on Humans, Wildlife
- Research and Development
  - Reduction of noise at source
  - Reduction of noise effects
- Education of public for effects of and avoidance of noise
- Research and Development on criteria
- Standards setting
- Administration
- Enforcement
- Determine damages, compensation, or penalties
- Continuing monitoring and evaluation of environmental noise abatement and control actions:
  - Problem perception
  - Problem definition
  - Information assembly
  - Alternative invention
  - Selection of appropriate course of action
  - Prescription of statutory scheme or program
  - Implementation and operations
  - Continuing appraisal or effects of operations
  - Modification or Termination of statutory scheme or abatement program
- Comprehensive Information System (Data Bank) to support continuing monitoring and evaluation of:
  - Existing Federal-State-local noise abatement measures
  - Proposed Federal-Regional-State-local noise abatement measures
    - Educational
    - Research & Development
    - Regulatory

5 FORMAL AUTHORITY AND LEVEL OF CONTROL

Federal

Constitution:
- Commerce Clause (Article I, §8 (3))
- Taxing Power (Article I, §8(1))
- Welfare Clause (Article I, §8 (1))
- (Supremacy Clause, Article VI (2))

Federal Policy Statements and Supporting Statutory Schemes for Implementation

Apportionment of Authority Among Federal, Regional, State and Local Jurisdictions

Regional and Interstate Authorities

Article I, §10, of the U.S. Constitution

Authority Granted Pursuant to Federal Legislation

State Constitutions

State

Police Power Pursuant to the 9th and 10th Amendments of the U.S. Constitution

14th Amendment of the U.S. Constitution (Due Process and Equal Protection)

Comprehensive State Noise Abatement and Control Statutes

Local

Derives from State Authority
- Comprehensive Local/Municipal Noise Abatement and Control Codes
- Local Provisions in: Health Codes, Building Codes, Zoning Codes, Vehicle Codes

Private

Control Over Use of Public or Private Land or Activity by Virtue of Ownership and Authority Pursuant to Existing Laws

Private Actions in:
- Nuisance
- Trespass
- Strict Liability
- Inverse Condemnation
- Constitutional "damaging"

Citizens' Suits – Class Actions:
- Common Law
- Statutory

Private Actions Pursuant to:
- Ordinances
- State Statutory Schemes
- Federal Statutory Provisions

6 MODES OF CONTROL AND IMPLEMENTATION TECHNIQUES

Basic Modes of Noise Control
- Abate at Source
- Regulate (Reduce) Noise Effects
- Compensate for Noise Damage

Federal Statutory Authority

Noise Pollution and Abatement Act of 1970 (Study, Recommend Legislation, Review Programs of Other Federal Agencies)

Environmental Policy Act of 1969 (Environmental Impact Statements 102(2)(C))

611 (1968) amendment to Federal Aviation Act of 1958 (Type-Certification – Aircraft)

Airport and Airway Development Act of 1970 (airport location re noise effects)

Walsh-Healey (Occupational – reduce noise at source and control effects)

Occupational Safety and Health Act of 1970

Federal-aid Highway Act of 1970 (highway design to reduce noise)

Interstate Compacts

Port of New York Authority (Proprietary Control)

State Statutory Schemes
- Comprehensive Environmental Codes
- Noise Codes
- Vehicle Codes, etc.
  - Sale or Type Certification
  - Operation

Local Regulatory Schemes

General Ordinances re Disturbing Noise

Specific Ordinances re Particular Noise Sources

Types of ordinances or of noise statutory scheme provisions:
- Zoned type
- Curfew type
- Spill-over type
- License and permit type
- Certification type
- Budget type
- Accessory type (including retrofit)
- Anti-degradation type
- Step-down type
- Density type
- Conservation type

(Greenwald, Alvin G. in *Environmental Reporter*, Vol. 1, No. 1, BNA, May 1, 1970)

General Application
- Public Information
- Labelling
- R&D to Eliminate Noise at Source
- R&D to Reduce the Effects of Noise
- Maximum Noise Levels for Noise Environments

7 CRITER UNITS MEASUREM

Criteria

Decibel (dB) Measurement o
"level or sound pressure lev

Decibel on a logarithmic sca
of 90 dB is 100% greater th
of 80 dB. Doubling of the
increase in 10 dB.

dBA – Sound level meter on
A physical description of
for its frequency characteri
and its temporal pattern.
reduces the contribution of
low frequency components
approximately 300 Hz) and
the easier-to-hear higher f
tions (1,000 to 4,000 Hz)
(bass and treble controls in
dBA scale most nearly appr
"perceived sound" to peopl

PNL – (expressed in units of
perceived noisiness values or
PNL calculates "noisiness."

EPNL takes into account the
and the presence of discrete
adding corrections to PNL

Ambient Noise as defined b
Standards Association "is th
noise associated with a giv
being usually a composite o
sources near and far."

CNR (Composite Noise Rati
magnitude of the noise intr
ing to PNL a quantity whi
are to assess the noisiness
including number of flights
of 12 dB for night flights,
time history of the single e
is proportional to the ave
noise intrusion.

NEF (Noise Exposure Fore
than the CNR, substituting
EPNL contains a tone corr
for the added noisiness of
a broadband noise.

CNEL (Community Equival
is A-weighted measure of
than the more complex EP

APPRAISAL

Analytical approach to the analysis of existing schemes of Environmental Noise Regulation

- What trends do the cases show with respect to the recognition by the courts of noise as a cause of injury to person or property which will be compensated in an action for nuisance or trespass or on the theory of a Constitutional "taking" or a State constitutional "taking or damaging" or for which full or modified injunctive relief might be available?
- What trends do the cases show with respect to actions brought pursuant to municipal noise control ordinances in terms of:
  1. Authority asserted to justify enactment of the ordinance?
  2. Limitations of authority recognized or asserted with respect to such ordinances?
     - a. Preemption by Federal or State legislation
     - b. Preclusion by terms of State constitution
     - c. Due Process limitations:
       - 1) Not reasonable means to a legitimate end
       - 2) Discriminatory and violative of equal protection
       - 3) Vagueness
     - d. Encroachment on free expression (1st Amendment)
     - e. Encroachment on other individual liberties
     - f. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
     - g. Technological feasibility
     - h. Economic reasonableness
     - i. Undue burden on interstate commerce

- What are the legislative trends at the State level with respect to noise source and effects regulation?
  1. Authority asserted to justify enactment of the legislation?
  2. Limitations of authority likely to be asserted with respect to such statutory schemes?
     - a. Preemption by Federal legislation
       - 1) Field completely preempted
       - 2) More stringent standards precluded
     - b. Due Process limitations:
       - 1) Not reasonable means to a legitimate end
       - 2) Discriminatory and violative of equal protection
       - 3) Vagueness
     - c. Encroachment on free expression
     - d. Encroachment on other individual liberties
     - e. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
     - f. Technological feasibility
     - g. Economic reasonableness
     - h. Undue burden on interstate commerce
  3. Implications for local noise regulation with respect to:
     - a. Criteria and standards
     - b. Participants affected
     - c. Implementing techniques
     - d. Enforcement procedures
     - e. Remedies and penalties
     - f. Local ambient noise levels
  4. Implications of noise level standards on judicial determinations of a Constitutional "taking" or of a State constitutional "taking or damaging"?

- What are the legislative trends and proposals at the Federal level with respect to noise source and effects regulation:
  1. Authority asserted to justify the enactment of the legislation?
  2. Limitations of authority likely to be asserted with respect to Federal noise regulatory schemes?
     - a. Due Process Limitations
       - 1) Not reasonable means to a legitimate public need
       - 2) Discriminatory and violative of equal protection
       - 3) Vagueness
     - b. Encroachment on free expression
     - c. Encroachment on other individual liberties
     - d. Threat to other significant social values such as safety, efficiency of operation, community economic well-being, etc.
     - e. Technological feasibility
     - f. Economic reasonableness
     - g. Invasion of State and local police power
  3. Implications for State and local noise regulation with respect to:
     - a. Standards setting
     - b. Use, operation, and movement of noise sources
     - c. Participants affected
     - d. Implementing techniques
     - e. Enforcement procedures
     - f. Remedies and penalties
     - g. State and local ambient noise levels
  4. Implications of noise level standards on judicial determinations of a Constitutional "taking" or of a State constitutional "taking or damaging"?

PROGRAM OF POLICY STUDIES IN SCIENCE AND TECHNOLOGY
The George Washington University
October 1971

The following an
selective mode
implications of
noise re

I - NOISE CONTROL LOCI

(Refer to Specific Noise Sources or Noise Environments in Column 1)

Questions to Consider in Deciding Upon New Environmental Noise Regulatory Proposals:

- What are the more critical noise sources not yet controlled?
- What noise can best be abated at the source?
- What noise can best be regulated through reduction of noise effects?
- What noise is so infrequent or marginal in social costs as to be best left to individual remedial action?
- What noise is so infrequent, unique, or marginal in terms of social costs that it can best be left to judicial or administrative techniques of compensation for special harm done?
- How can functions for certain noise control contexts be best apportioned among governmental levels or among entities at the same level?
- How can regulatory configurations be designed for controlling specified noise contexts so as to minimize conflict in function, including standards setting, administration, and enforcement, i.e., minimization of "preemption situations"?
- Should municipalities be permitted to set noise standards at more stringent levels than required by either Federal or State standards? If so, with respect to what discrete noise sources or noise environments? What are the considerations? What are the precedents in other environmental quality control areas?
- What are the more critical contexts of noise regulation in terms of the probability of placing an unreasonable burden on interstate commerce?

II - ELEMENTS OF ANY PROPOSED ENVIRONMENTAL NOISE REGULATORY CONFIGURATION (ENRC)

(Refer to Columns 4 - 10)

III - INDICES FOR ASSESSING PREEMPTIVE EFFECTS OF PROPO

(Federal Legislative Preemption of State and Local Noise Ab
Codes, Ordinances, etc.)

(State Legislative Preemption of Local Noise Abatement Co

Questions to Avail into Determination of the Preemptive Eff
Higher Level (HL) ENRC Include:

- Precisely what has the HL Regulatory Configuration unde
  abate or control?

  What Noise Source or Noise Environment?
  Abate at Source, Regulate Effects, or Compensate fo
  Noise Damage Effects?
  Support R&D? Administer? or Enforce? or Provide
  Resources for Administration and Enforcement at S
  ordinate Governmental Levels?
  Set Standards for:
  Discrete Noise Sources
  Articulated Technologies with Multiple
  Noise-Producing Components
  Recurring Sound-Producing Activities
  With Varying Assemblies of Discrete
  And Articulated Noise-Producing
  Components
  Noise Environments?
  Set Exclusive Standards or Maximum Noise Decibel L
  Allowing Lower Jurisdictions to Establish More St
  Standards?

- Does the ENRC undertake to control noise sources or noi
  ments involved in or substantially impinging on an
  reflecting a strong national interest or dependent, ed
  and experience or by previous Federal legislation in

- Does the ENRC undertake to control noise sources or no
  ments requiring uniformity of regulation? Why?

- Does the ENRC undertake to control noise sources or noi
  ments for which State and local jurisdictions have no
  initiative or for which they may lack authority, or wh
  resources or expertise which are not generally availab
  State and local levels?

L NOISE ABATEMENT AND CONTROL STRUCTURE

(Illustrative Regulatory Matrix)

B

REGULATORY CONFIGURATION ELEMENTS

ACT
S OF

4 OBJECTIVES AND FUNCTIONS

- Research on effects of noise on
  Humans
  Wildlife
- Research and Development
  Reduction of noise at source
  Reduction of noise effects
- Education of public for effects of and avoidance of noise
- Research and Development on criteria
- Standards setting
- Administration
- Enforcement
- Determine damages, compensation, or penalties
- Continuing monitoring and evaluation of environmental noise abatement and control actions:
  - Problem perception
  - Problem definition
  - Information assembly
  - Alternative invention
  - Selection of appropriate course of action
  - Prescription of statutory scheme or program
  - Implementation and operations
  - Continuing appraisal or effects of operations
  - Modification or Termination of statutory scheme or abatement program
- Comprehensive Information System (Data Bank) to support continuing monitoring and evaluation of:
  - Existing Federal-State-local noise abatement measures
  - Proposed Federal-Regional-State-local noise abatement measures
    Educational
    Research & Development
    Regulatory

5 FORMAL AUTHORITY AND LEVEL OF CONTROL

Federal

Constitution:
Commerce Clause (Article I, §8 (3))
Taxing Power (Article I, §8(1))
Welfare Clause (Article I, §8 (1))
(Supremacy Clause, Article VI (2))

Federal Policy Statements and Supporting Statutory Schemes for Implementation

Apportionment of Authority Among Federal, Regional, State and Local Jurisdictions

Regional and Interstate Authorities

Article I, §10, of the U.S. Constitution

Authority Granted Pursuant to Federal Legislation

State Constitutions

State

Police Power Pursuant to the 9th and 10th Amendments of the U.S. Constitution

14th Amendment of the U.S. Constitution (Due Process and Equal Protection)

Comprehensive State Noise Abatement and Control Statutes

Local

Derives from State Authority

Comprehensive Local/Municipal Noise Abatement and Control Codes

Local Provisions in: Health Codes
Building Codes
Zoning Codes
Vehicle Codes

Private

Control Over Use of Public or Private Land or Activity by Virtue of Ownership and Authority Pursuant to Existing Laws

Private Actions in:
Nuisance
Trespass
Strict Liability
Inverse Condemnation
Constitutional "damaging"

Citizens' Suits – Class Actions:
Common Law
Statutory

Private Actions Pursuant to:
Ordinances
State Statutory Schemes
Federal Statutory Provisions

6 MODES OF CONTROL AND IMPLEMENTATION TECHNIQUES

Basic Modes of Noise Control

Abate at Source
Regulate (Reduce) Noise Effects
Compensate for Noise Damage

Federal Statutory Authority

Noise Pollution and Abatement Act of 1970 (Study, Recommend Legislation, Review Programs of Other Federal Agencies)

Environmental Policy Act of 1969 (Environmental Impact Statements 102(2)(C))

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Occupational Safety and Health Act of 1970

Federal-aid Highway Act of 1970 (highway design to reduce noise)

Interstate Commerce

Port of New York Authority (Proprietary Control)

State Statutory Schemes

Comprehensive Environmental Codes
Noise Codes
Vehicle Codes, etc.
Sale or Type Certification
Operation

Local Regulatory Schemes

General Ordinances re Disturbing Noise

Specific Ordinances re Particular Noise Sources

Types of ordinances or of noise statutory scheme provisions:
Zonal type
Curfew type
Spill-over type
License and permit type
Certification type
Budget type
Advisory type (including consult)
Anti-degradation type
Step-up type
Density type
Conservation type

(Greenwald, Alvin G. in Environmental Reporter, Vol. I, No. 1, BNA, May 1, 1970)

General Application

Public Information
Labelling
R&D to Eliminate Noise at Source
R&D to Reduce the Effects of Noise
Maximum Noise Levels for Noise Environments

7 CRITERIA: UNITS OF MEASUREMENT

Criteria

Decibel (dB) Measurement of amplitude or sound level or sound pressure level.

Decibel on a logarithmic scale. Sound pressure of 90 dB is 100% greater than a sound pressure of 80 dB. Doubling of the loudness with each increase in 10 dB.

dBA – Sound level meter on the A-weighting. A physical description of sound must account for its frequency characteristics, its magnitude, and its temporal pattern. The A-weighting reduces the contribution of the hard-to-hear low frequency components of the sound (below approximately 300 Hz) and somewhat enhances the easier-to-hear higher frequency contributions (1,000 to 4,000 Hz) to the meter reading. (Bass and treble controls in a hi-fi set). The dBA scale most nearly approximates the most "unwanted sound" to people.

PNL – (expressed in units of PNdB) is the subjective annoyance value or noisiness of sound. PNL calculates "noisiness."

EPNL takes into account the duration of a sound and the presence of discrete tones (pitch) by adding corrections to PNL for these effects.

Ambient Noise as defined by the American Standards Association "is the all-encompassing noise associated with a given environment, being usually a composite of sounds from any sources near and far."

CNR (Composite Noise Rating) calculates magnitude of the noise intrusion made by adding to PNL a quantity calculated by a procedure to assess the noisiness of an aircraft sound including number of flights, an extra penalty of 12 dB for night flights, such that for a fixed time history of the single event noise, the CNR is proportional to the energy average of the noise intrusion.

NEF (Noise Exposure Forecast) is an evaluation from the CNR, substituting EPNL for PNL. EPNL contains a tone penalty which accounts for the added noisiness of pure tones added to a broadband noise.

CNEL (Community Equivalent Noise) uses an A-weighted measure of intrusion rather than the more complex EPNL.

8 STANDARDS

Ambient Noise Levels

National
Regional
State
Local
Specific Noise Environments

Verbal-Subjective Levels

"Unnecessary Noise"

"Unusual or Excessive Noise"

"Unnecessary Aircraft Noise"

Quantitative Standards (in decibel noise levels)

Decibel levels based on octave band frequency with respect to:
Residential Boundaries
Business Boundaries
"Quiet Zones"

Decibel Levels Placed Upon:
Noise Environments
Certification or Approval for Sale (Devices, Products, Equipment)
Operation, use, or movement of Specific Noise Sources

Qualification re Standards

"Economically Reasonable"

"Technologically Practicable"

"Whether any proposed (noise) standards, rule, or regulation is consistent with the highest degree of safety in air commerce or air transportation in the public interest"

9 ENFORCEMENT – REMEDIES AND PENALTIES

Institutional Enforcement Alternatives

Federal Administration Agencies Such as EPA, DOT (FAA), etc.

State Administrative Agencies Pursuant to comprehensive noise abatement statutes

Local law enforcement agencies including police, housing inspectors, health inspectors, etc.

Individual or class actions based on common law nuisance or general noise abatement ordinances

Individual or class actions pursuant to Federal or State or local statutory authority

Private (Proprietary) regulation of noise levels as by airport operators or regional transportation authorities

Remedies

Damages based on action of common law nuisance

Damages based on action authorized by statute or ordinance

Injunctions Cessation
Modification of Operations

Inverse condemnation based upon a Constitutional "taking"

Damages based upon a State constitutional provision for compensation where private property is "taken or damaged" for public use or for a public purpose

Cease and Desist Orders

Penalties

Disqualification for government contracts

Non-certification

Certification revocation, suspension, modification

Cessation of operations

Forced modification of operations

Confiscation of noisy devices

Fines

Imprisonment

10 AFFECTED PARTICIPANTS

Public Sector

Federal Level

Council on Environmental Quality
Office of Science and Technology
Environmental Protection Agency
Department of Transportation (FAA, etc.)
NASA
Department of the Interior
Department of Commerce (National Bureau of Standards)
Etc.

Congressional Committees
General Accounting Office
Congressional Research Service

Foreign Governments
Multi-National Organizations

Interstate and Regional Level

Transportation Authorities

State Level

Executive agencies concerned with Environmental Quality Control:
Administrative
Monitoring
Enforcement

Private Sector

Government Contractors
R&D Firms
Standards Testing Organizations
Mine Operators
Ore Processors
Raw Material Transporters
Manufacturers
Distributors
Building Contractors
Operators of Noise-Producing Facilities or Machinery
Industrial Unions
Employee Organizations
Trade Associations
User Groups
Civic and Citizens Groups
Professional Associations
Mass Media
Critics and Specialized Journals
Environmental Quality Seminars and Conferences
Other Affected Individuals or Groups in the Public

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ance and effects regulation:

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ment procedures
s and penalties
t local ambient noise levels
nove level standards on judicial determinations of
onal "taking" or of a State constitutional "taking
?

EVALUATION

The following analytical approach represents a selective mode of evaluating the preemptive implications of proposed Federal and State noise regulatory legislation

I – NOISE CONTROL LOCI

(Refer to Specific Noise Sources or Noise Environments in Column I)

Questions to Consider in Deciding Upon New Environmental Noise Regulatory Proposals:

- What are the more critical noise sources not yet controlled?
- What noise can best be abated at the source?
- What noise can best be regulated through reduction of noise effects?
- What noise is so infrequent or marginal in social costs as to be best left to individual remedial action?
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- How can functions for certain noise control contexts be best apportioned among governmental levels or among entities at the same level?
- How can regulatory configurations be designed for controlling specified noise contexts so as to minimize conflict in function, including standards setting, administration, and enforcement, i.e., minimization of "preemption situations"?
- Should municipalities be permitted to set noise standards at more stringent levels than required by either Federal or State standards? If so, with respect to what discrete noise sources or noise environments? What are the considerations? What are the precedents in other environmental quality control areas?
- What are the more critical contexts of noise regulation in terms of the probability of placing an unreasonable burden on interstate commerce?

II – ELEMENTS OF ANY PROPOSED ENVIRONMENTAL NOISE REGULATORY CONFIGURATION (ENRC)

(Refer to Columns 4 – 10)

III – INDICES FOR ASSESSING PREEMPTIVE EFFECTS OF PROPOSED ENRC

(Federal Legislative Preemption of State and Local Noise Abatement Codes, Ordinances, etc.)

(State Legislative Preemption of Local Noise Abatement Ordinances)

Questions to Facilitate Determination of the Preemptive Effect of Higher Level (HL) ENRC Include:

- Precisely what has the HL Regulatory Configuration undertaken to abate or control?
  What Noise Source or Noise Environment?
  Abate at Source, Regulate Effects, or Compensate for Noise Damage Effects?
  Support R&D? Administer? or Enforce? or Provide Resources for Administration and Enforcement at Subordinate Governmental Levels?
  Set Standards for:
  Discrete Noise Sources
  Articulated Technologies with Multiple Noise-Producing Components
  Recurring Sound-Producing Activities With Varying Assemblies of Discrete And Articulated Noise-Producing Components
  Noise Environments?
  Set Exclusive Standards or Maximum Noise Decibel Limits Allowing Lower Jurisdictions to Establish More Stringent Standards?
- Does the ENRC undertake to control noise sources or noise environments involved in or substantially impinging on activities reflecting a strong national interest as demonstrated from practice and experience or b. previous Federal legislation in the area?
- Does the ENRC undertake to control noise sources or noise environments requiring uniformity of regulation? Why?
- Does the ENRC undertake to control noise sources or noise environments for which State and local jurisdictions have never taken initiative or for which they may lack authority, or which require resources or expertise which are not generally available at the State and local levels?

IV – ANTICIPATED SOCIAL IMPACTS OF PROPOSED ENVIRONMENTAL NOISE REGULATORY CONFIGURATION (ENRC) RESULTING FROM APPARENT NATURE AND SCOPE OF PREEMPTION

The prime question here is whether the imposition of preemptive legislation will result in a net social benefit not only with respect to the ENRC proposed, but whether the proposed ENRC will result in a higher social benefit/social cost ratio than alternative regulatory configurations.

The Effects identified as flowing from the imposition of the proposed ENRC must be translated into Social Impacts in terms of the

Probability
Direction
Magnitude
Duration of such Effects
(Whether Planned or Derivative)
Degree of Social Desirability
(or Undesirability)

and with respect to the impact on

Affected Participants
Number and character of various categories:
Manufacturers
Suppliers
Operators
Users
Others Affected)

and

Value-Institutional Processes

Illustrative Questions to Assist Social Impact Evaluation Include:

- Will the ENRC satisfy reasonable community expectations re noise abatement efforts? With respect to existing sources and environments only, or to new discrete noise sources and noise environments?
- Will the ENRC encourage or discourage action by participants and entities involved in noise abatement or otherwise affected by noise and noise abatement?
- Can the ENRC be effectively administered and enforced?
- Will the ENRC deprive lower level jurisdictions of the authority and resources to deal with special or unique noise contexts?
- Does the ENRC avoid unnecessary control over the use, operation, and movement of noise-producing machinery, devices, and equipment at the State and local level in accomplishing the desired noise abatement objectives?
- If the ENRC is designed to promote a national interest or to take abatement action at the Federal level for lack of authority, resources or skill at the State and local level, is this being accomplished at minimum (or reasonable) cost and without appreciable impingements to special State and local problem-solving efforts?
- Will the ENRC provide for an equitable apportionment of the social benefits and the social costs among those affected? (Manufacturers, Suppliers, Operators, Users, Administrators, etc.)
- Can the ENRC be implemented and administered at "reasonable cost"? (No waste of human and material resources required for other social programs)
- Is the ENRC "technologically practicable" for the scheduled date of imposition? (For single date or progressively stricter standards for future dates)
- Will the ENRC encourage technological innovation (provide an incentive)?
- Is the requisite knowledge and skill available (or to be made available) for effective implementation of the ENRC?
- Will the ENRC encourage knowledge and skill development in the management of environmental quality programs, including noise abatement?
- Will the ENRC reinforce or deprive other social values such as:
  Non-Discriminatory Practices
  Free Expression
  Safety
  Mobility
  Access to Goods and Services
  Physical Well-Being
  Mental Well-Being
  Pleasing Natural Environment
  Pleasing Social Environment
- Will the ENRC provide for uniformity in administration and in uniformity of treatment among the affected or supporting industrial and commercial activities? Will the ENRC encourage responsible official and private behavior?